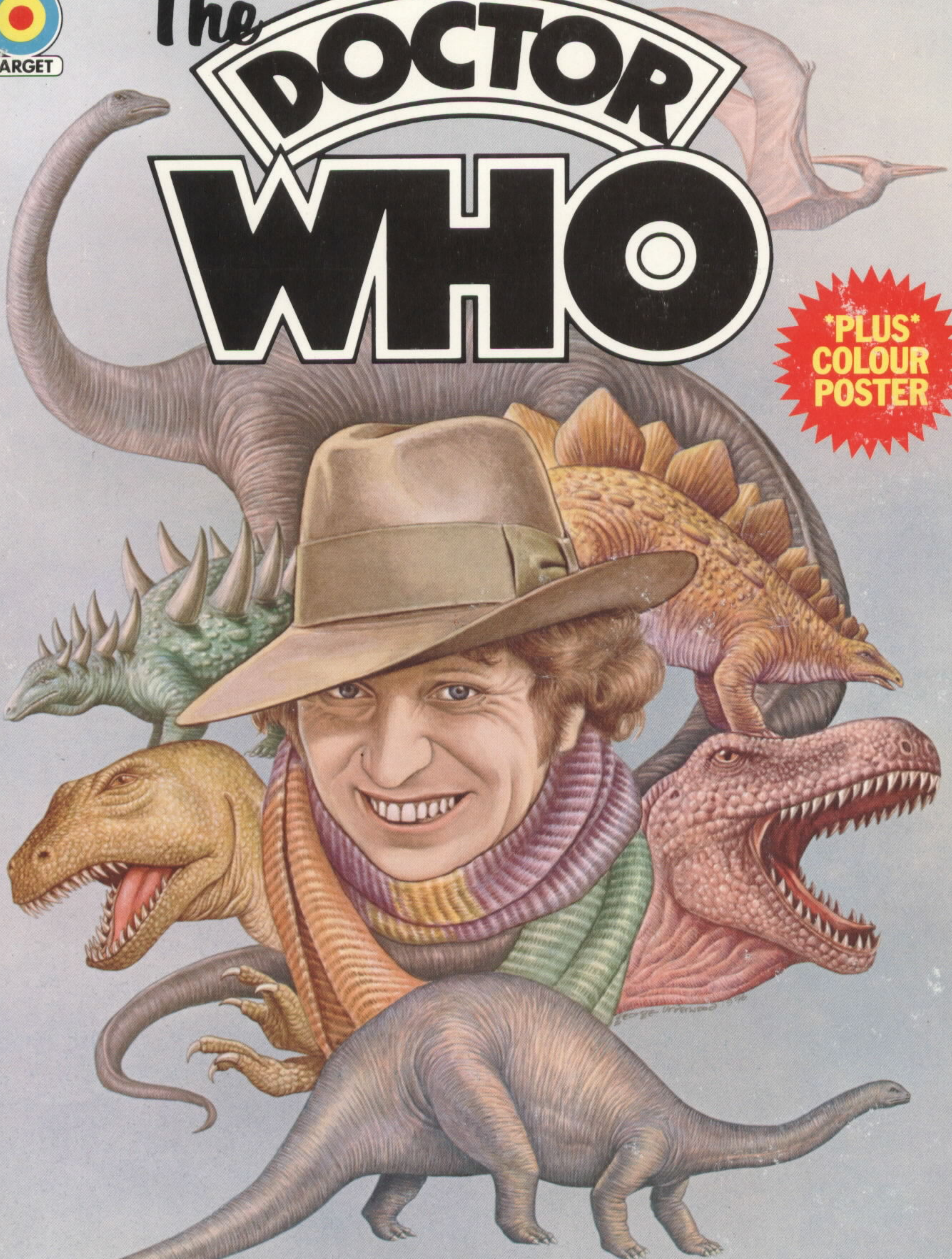
TARGET

The DOCTOR WHO



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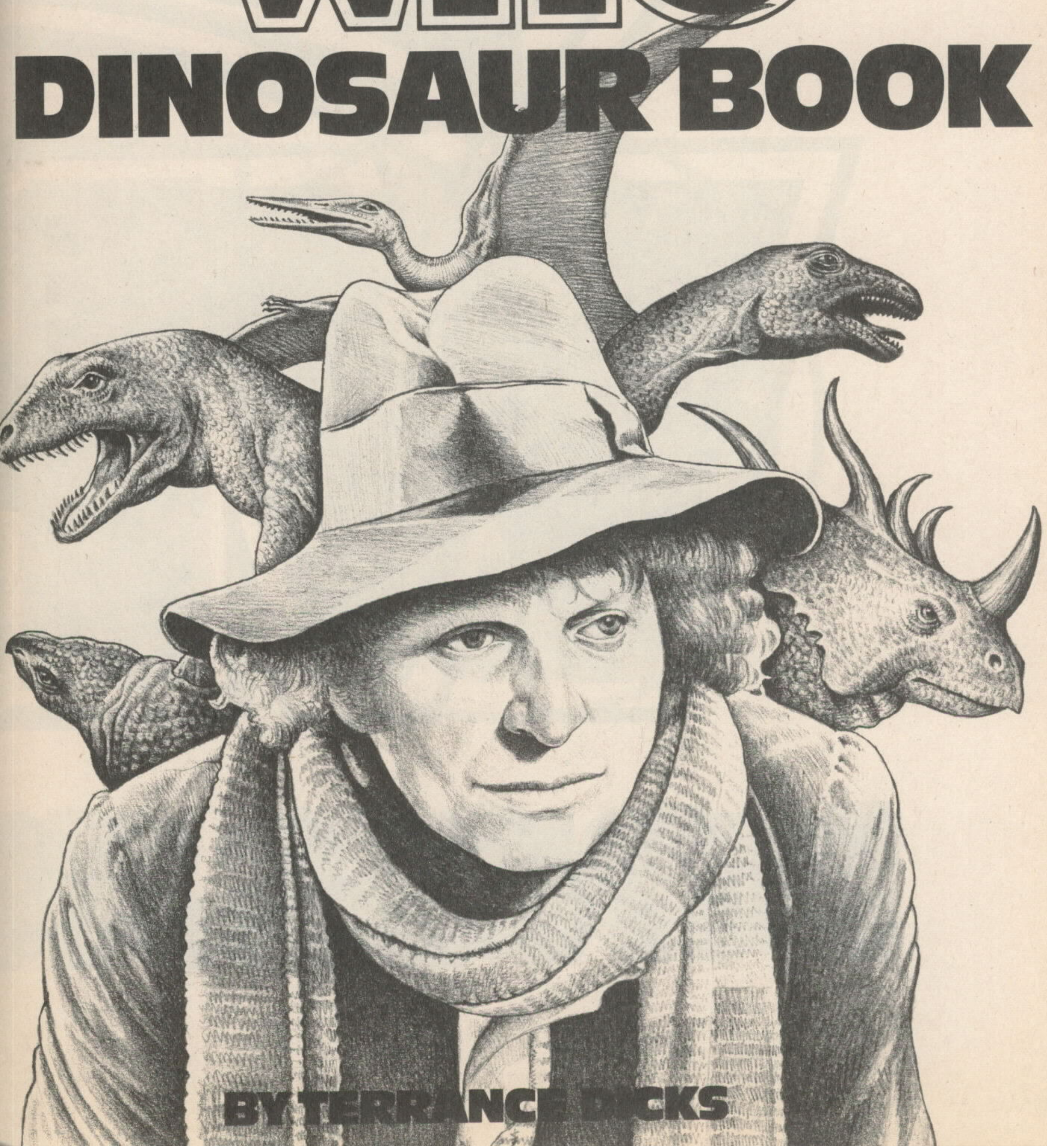
DINOSAUR BOOK

The DOCTOR WHO DINOSAUR BOOK



BY TERRANCE DICKS

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“**Hello! I'm the Doctor!** If you've been following my adventures, you'll know I've met some pretty fearsome monsters in my travels around the Universe. Daleks, Cybermen, Ice Warriors – there's quite a long list. Once, I even ran into your own Loch Ness Monster! But alien planets aren't the only ones with monsters on them. You once had more than your share of monsters right here on Earth. Huge, terrifying creatures with savage fangs and claws. Monsters of all shapes and sizes, on land, in the seas, and even in the air.

Luckily for Man, these monsters roamed the Earth long before he appeared. By the time human beings came on the scene, the Age of the Monsters was over. Perhaps it's just as well!

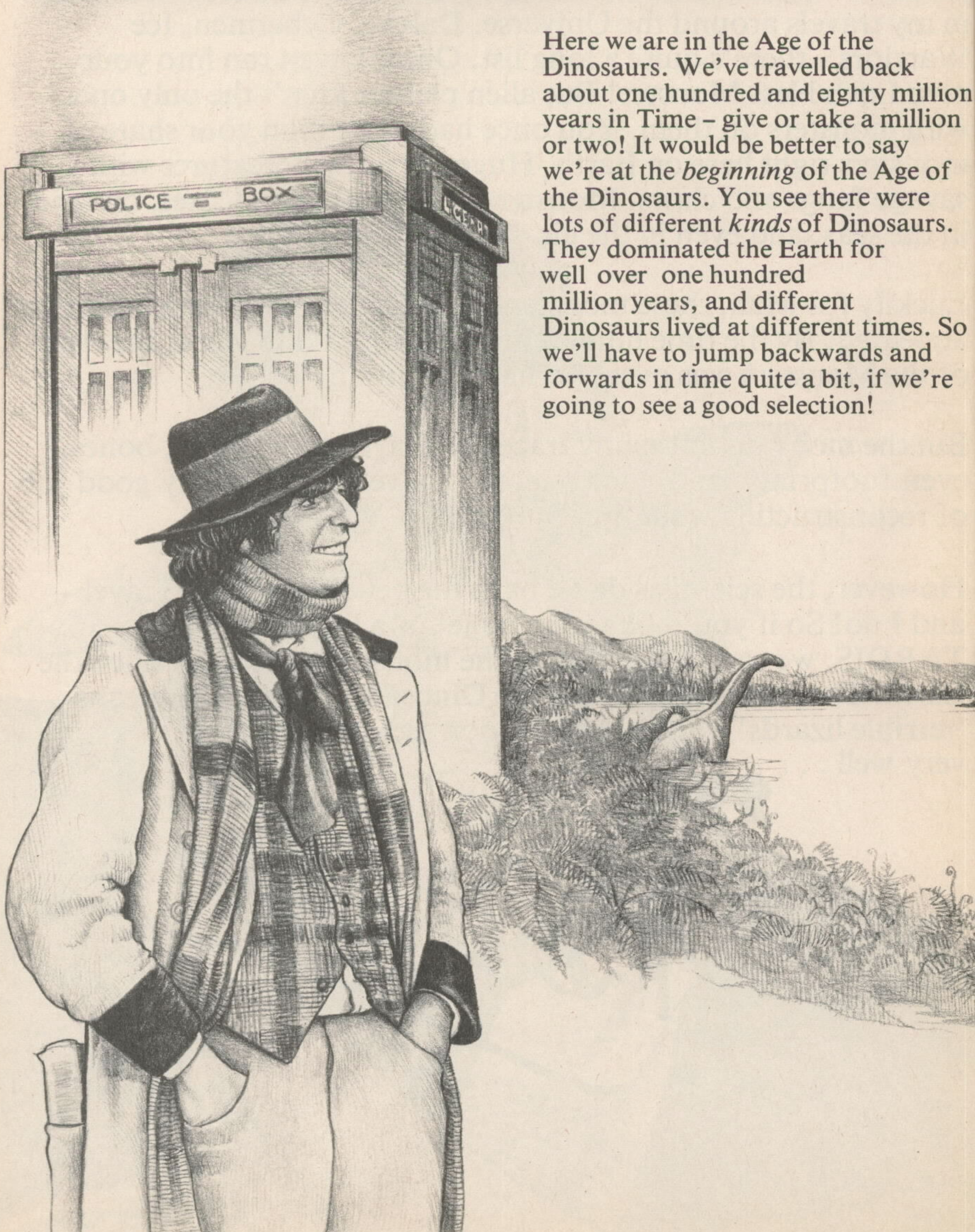
But the monsters left many traces behind them – fossils, bones, even footprints, and your scientists have done a pretty good job of reconstructing what they looked like.

However, the scientists don't have the benefit of Time Travel – and I do! So if you'd like to join me for a little trip in the TARDIS, we can take a look at the monsters who once ruled the Earth. They're usually called the Dinosaurs. The name means ‘terrible lizards’ – and as you'll soon see, it suited them very well . . . ”

The Doctor

THE AGE OF T

Here we are in the Age of the Dinosaurs. We've travelled back about one hundred and eighty million years in Time – give or take a million or two! It would be better to say we're at the *beginning* of the Age of the Dinosaurs. You see there were lots of different *kinds* of Dinosaurs. They dominated the Earth for well over one hundred million years, and different Dinosaurs lived at different times. So we'll have to jump backwards and forwards in time quite a bit, if we're going to see a good selection!



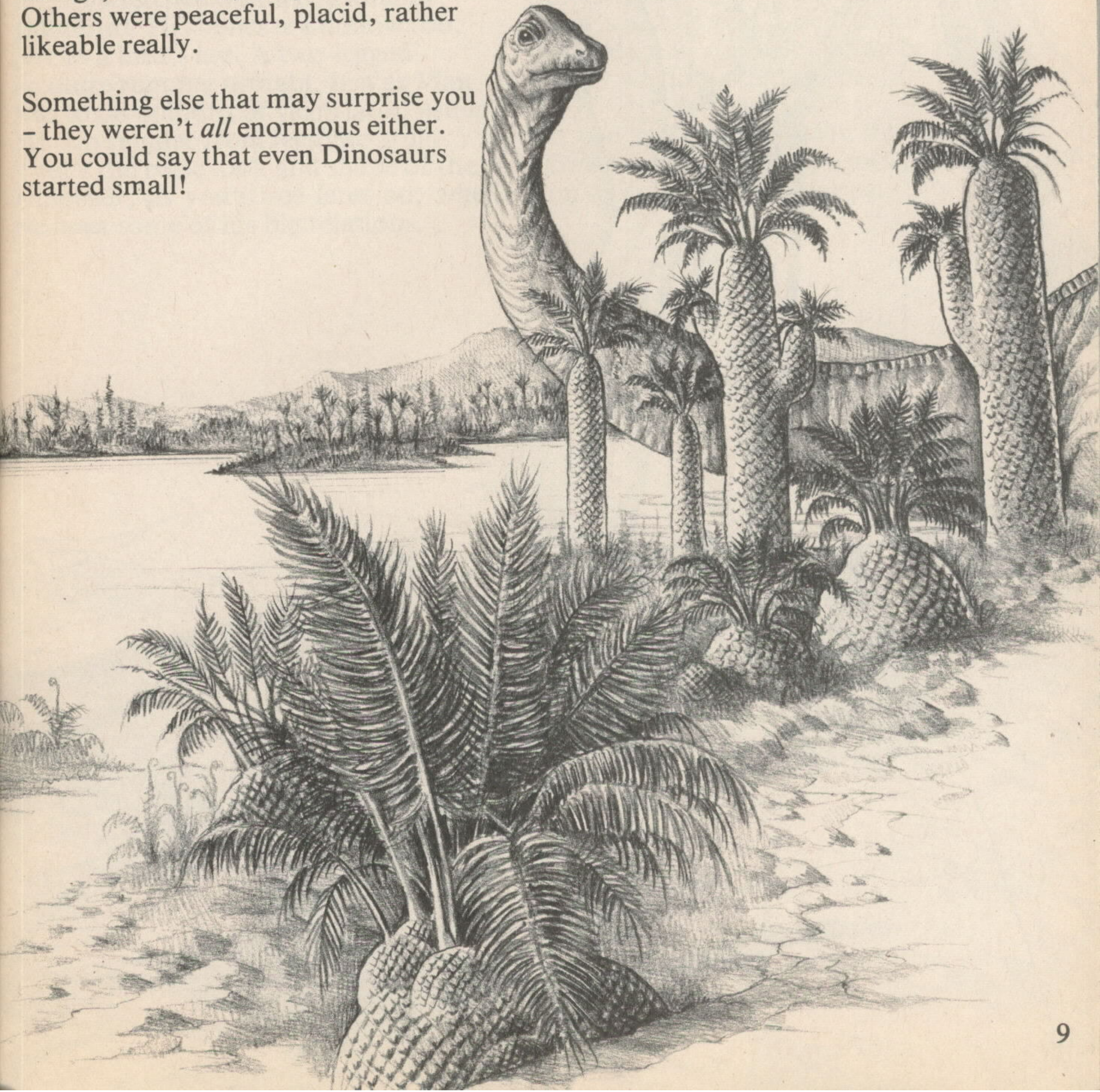
E DINOSAURS

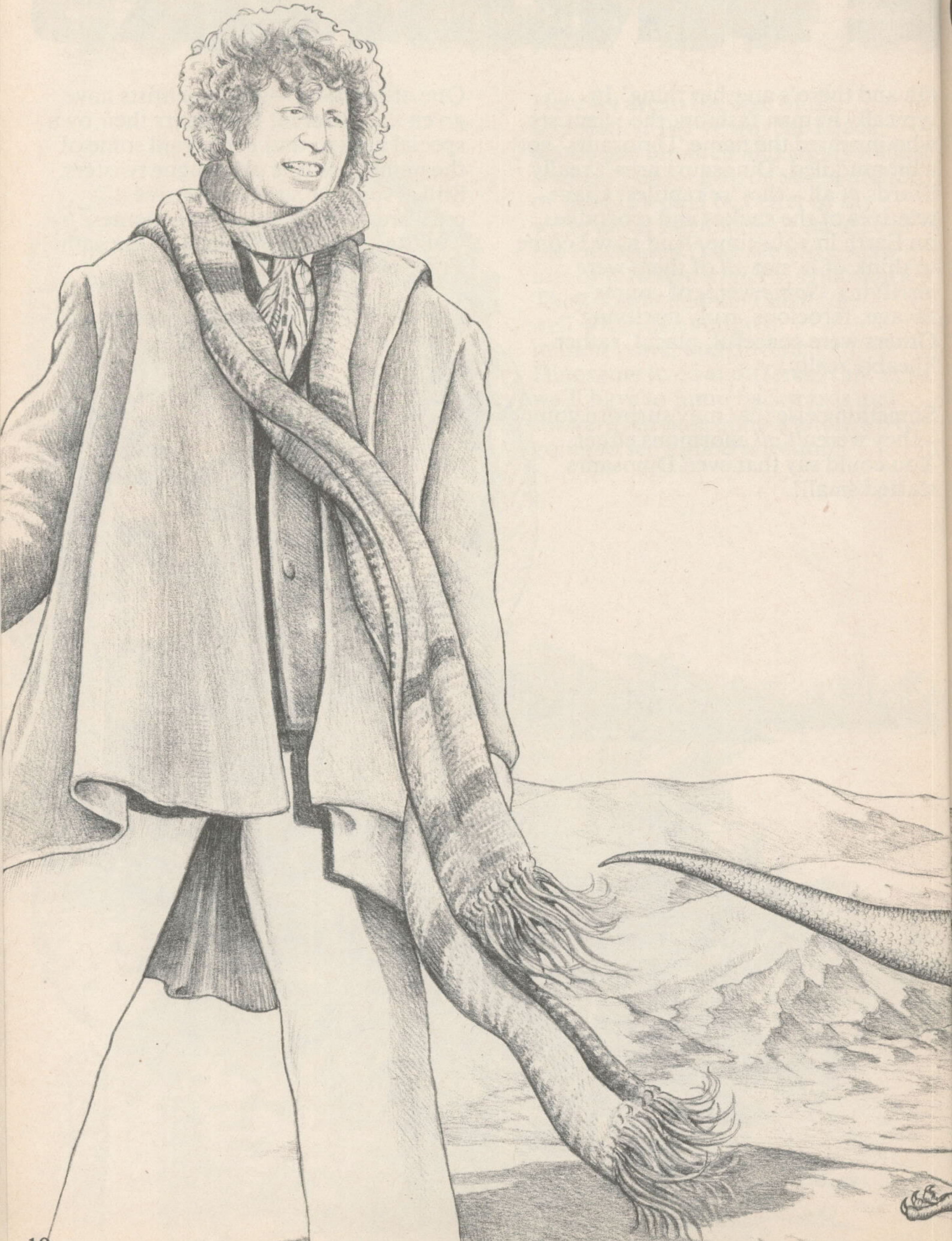
Oh and there's another thing! In typically human fashion, the scientists who invented the name 'Dinosaurs' got a bit muddled. Dinosaurs aren't really lizards at all – they're reptiles. Giant relatives of the snakes and crocodiles on Earth in your time. And now I come to think of it, not *all* of them were terrifying. *Some* were, of course – savage, ferocious, truly terrifying . . . Others were peaceful, placid, rather likeable really.

Something else that may surprise you – they weren't *all* enormous either. You could say that even Dinosaurs started small!

One other point – your scientists have given the different Dinosaurs their own special names, and I'm afraid some of the names are fine old tongue twisters. Still, I suppose such impressive creatures deserve impressive names. It wouldn't seem right to call a Dinosaur Fred, or Bert . . .

Now then, let's begin at the beginning . . .





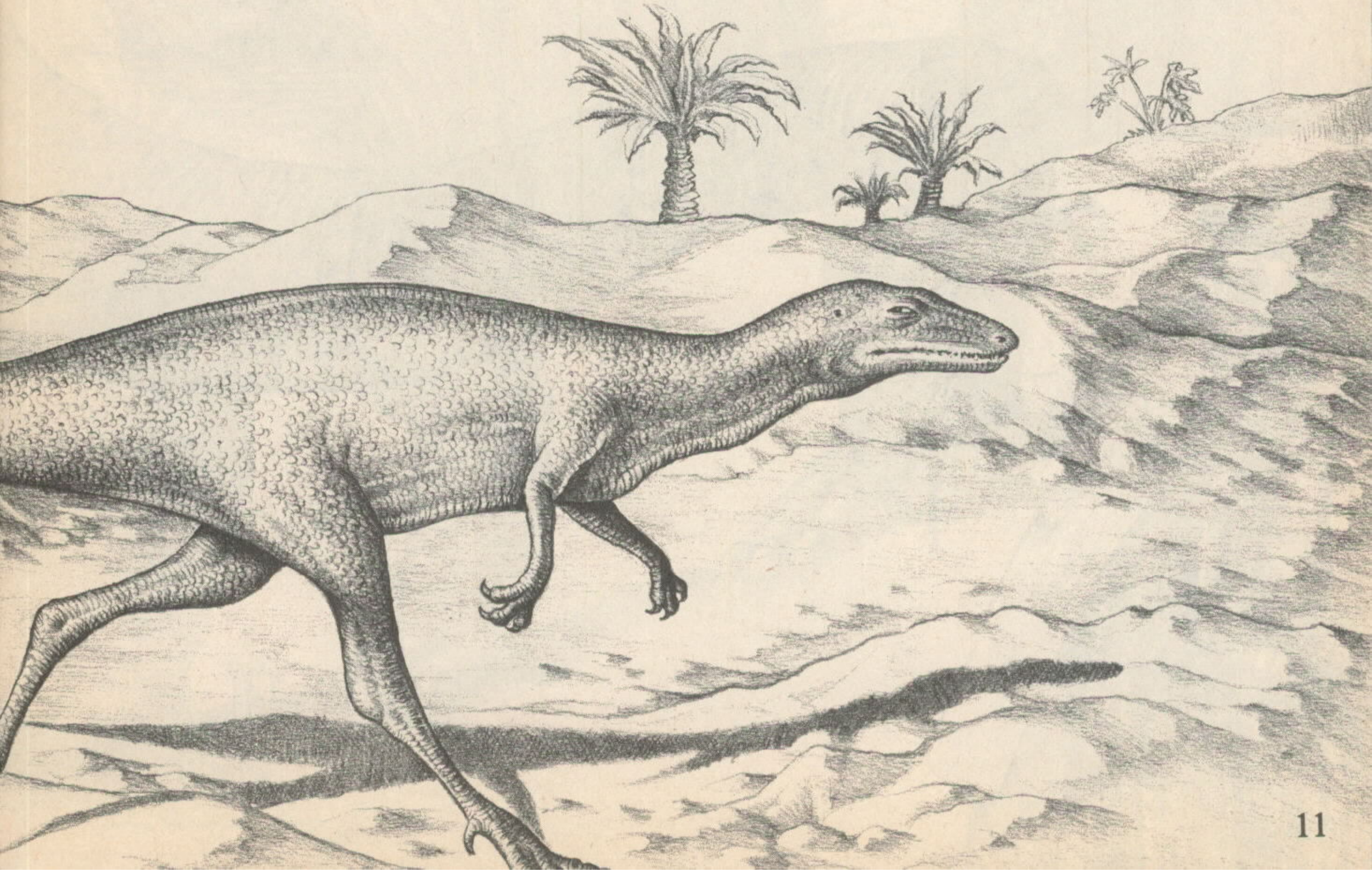
COELOPHYSIS

This little chap is called Coelophysis. As you can see, he's not really all that big – about two and a half metres long, and one metre high.

But though he's not very big, he's very important. He was one of the *first* Dinosaurs, you see. Look at the way he nips along on those two back legs with his tail stretched out, like a kind of giant bird. His bones are hollow too, just as a bird's are. A two-legged creature running upright, just as Man was to do millions of years later, using his two smaller front legs like arms . . . That's the basic look and shape of the Dinosaur, as you'll see later on, when we meet some of his big relations.

Now Coelophysis may not seem much of a monster to you. But he was more than enough for the other reptiles who shared the Earth with him. Notice those rows of teeth? See the claws on the end of those little arms? Coelophysis was a carnivore – a flesh-eater! He ran down his prey and tore it to pieces. Luckily he's decided I'm a bit too odd-looking to be really tasty! And I must say, that's just as well. Coelophysis may be on the small side, but he can be pretty nasty when he wants to be.

If you're disappointed in the size of this first Dinosaur, don't go away. The next on our list is a real whopper!



APATOSAURUS

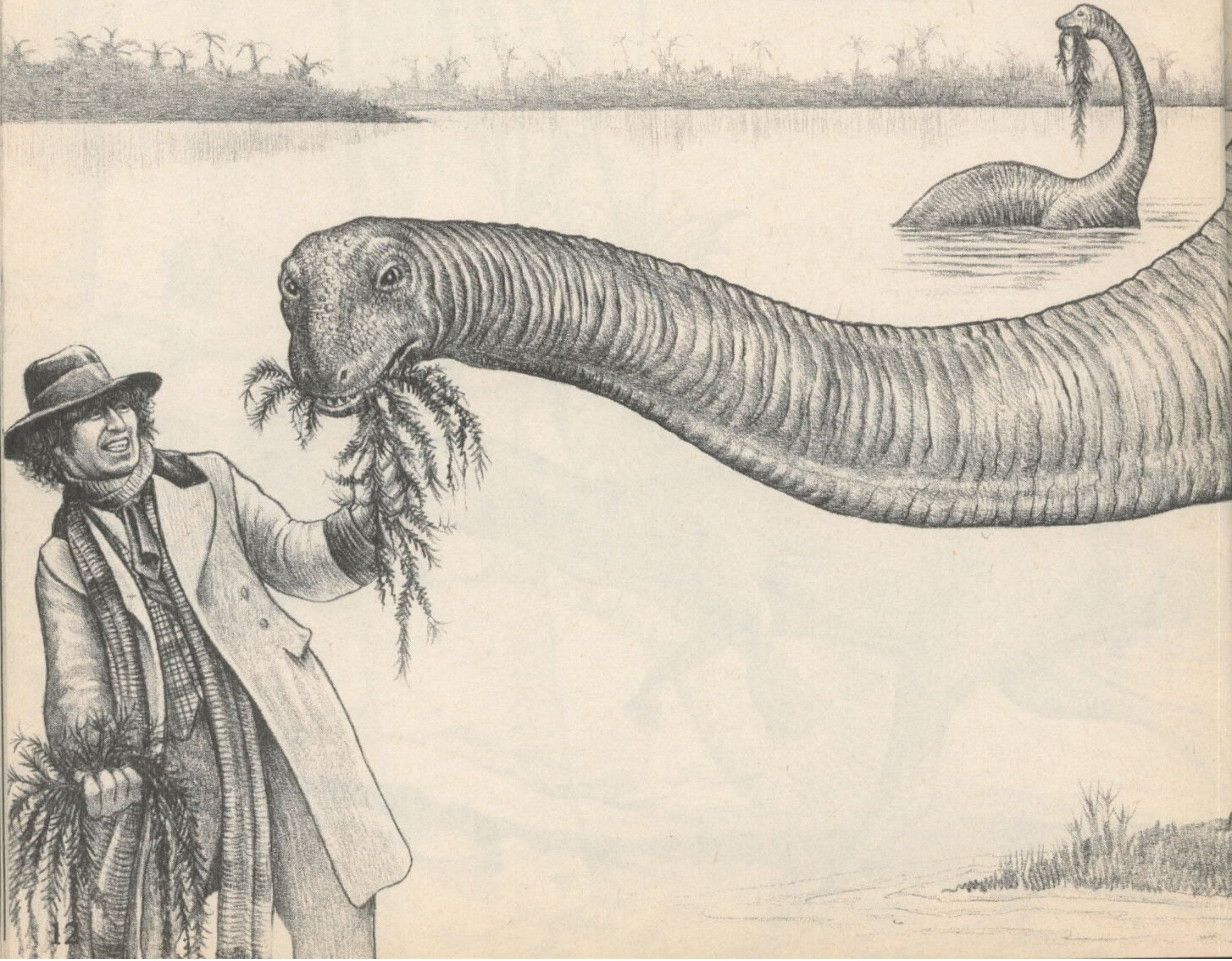
We've travelled on a little now – about thirty million years. This is the Apatosaurus – and he ought to be huge enough to satisfy anybody! He's a good twenty metres long. He's four and a half metres high – and that's not counting that great long neck of his. And as you can see, for all his enormous size, he's pretty well harmless.

Apatosaurus is a vegetarian. He lives on these weeds and plants in and around the water. He spends most of his life paddling about and eating like this. The water helps to take the weight off his feet!

Even if he did turn nasty, there's not much to worry about. He's so large he can only manage a few kilometres an hour. He may be as big as a train, but it's a very slow train!

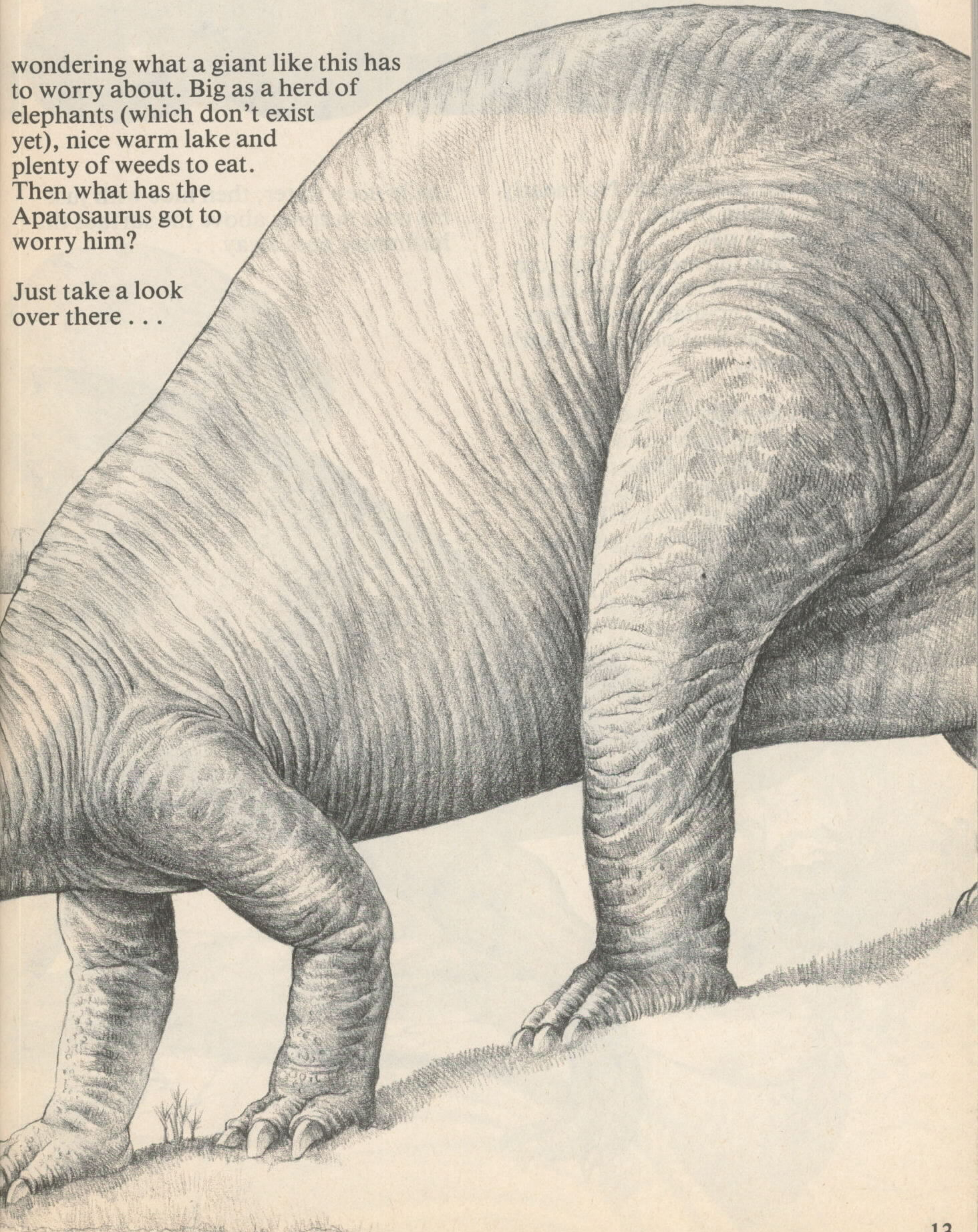
Rather a lovable creature, the Apatosaurus. He'd make a very good pet, if you had a big enough pond in your garden! You may think he looks a bit dim – but don't underestimate him. He's got not one brain but two! He's so big that there's a kind of relay station at the top of his tail to pass on the messages from the brain in his head.

Have you noticed that he's got rather a worried expression? Maybe you're



wondering what a giant like this has to worry about. Big as a herd of elephants (which don't exist yet), nice warm lake and plenty of weeds to eat. Then what has the Apatosaurus got to worry him?

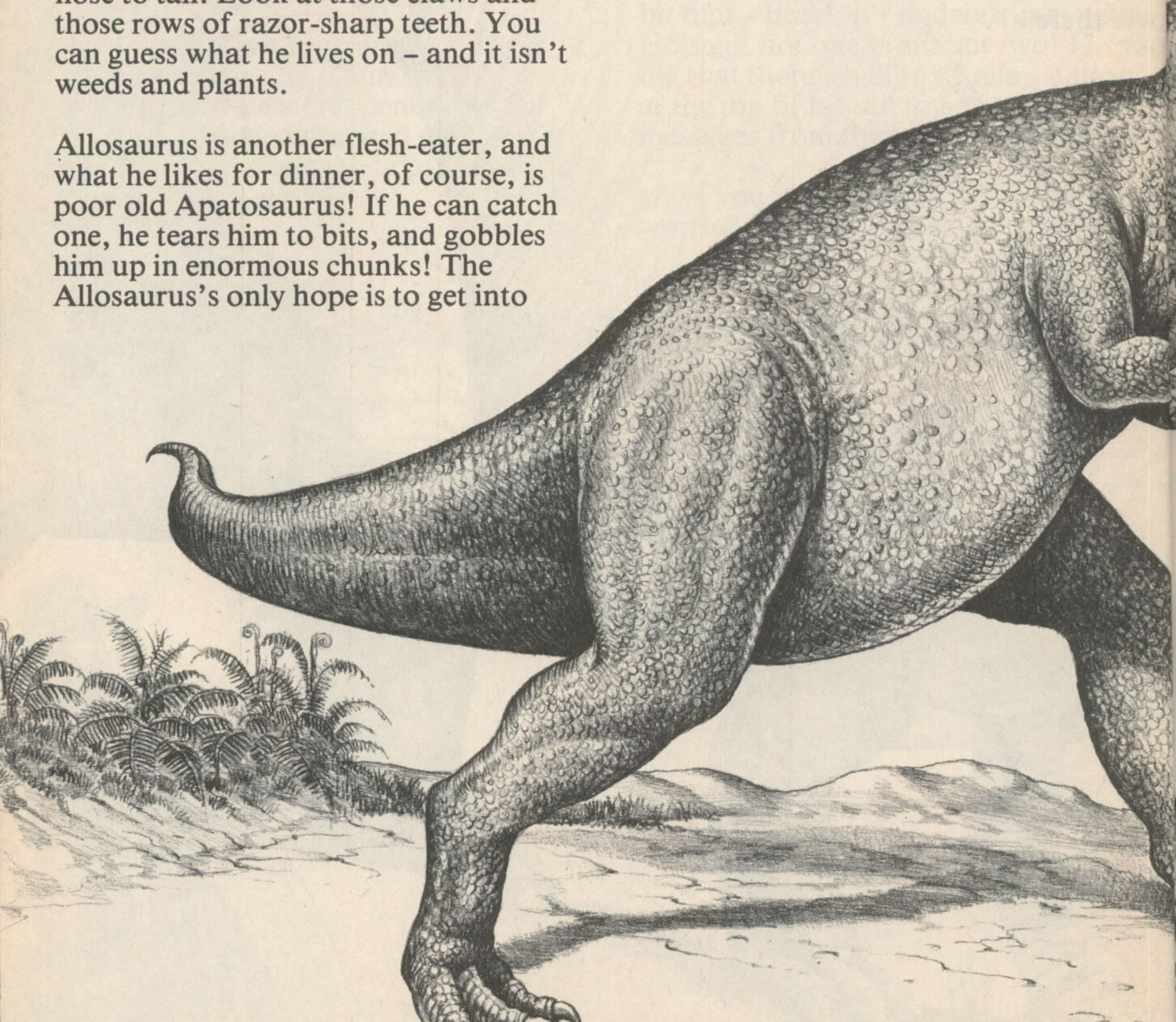
Just take a look over there . . .



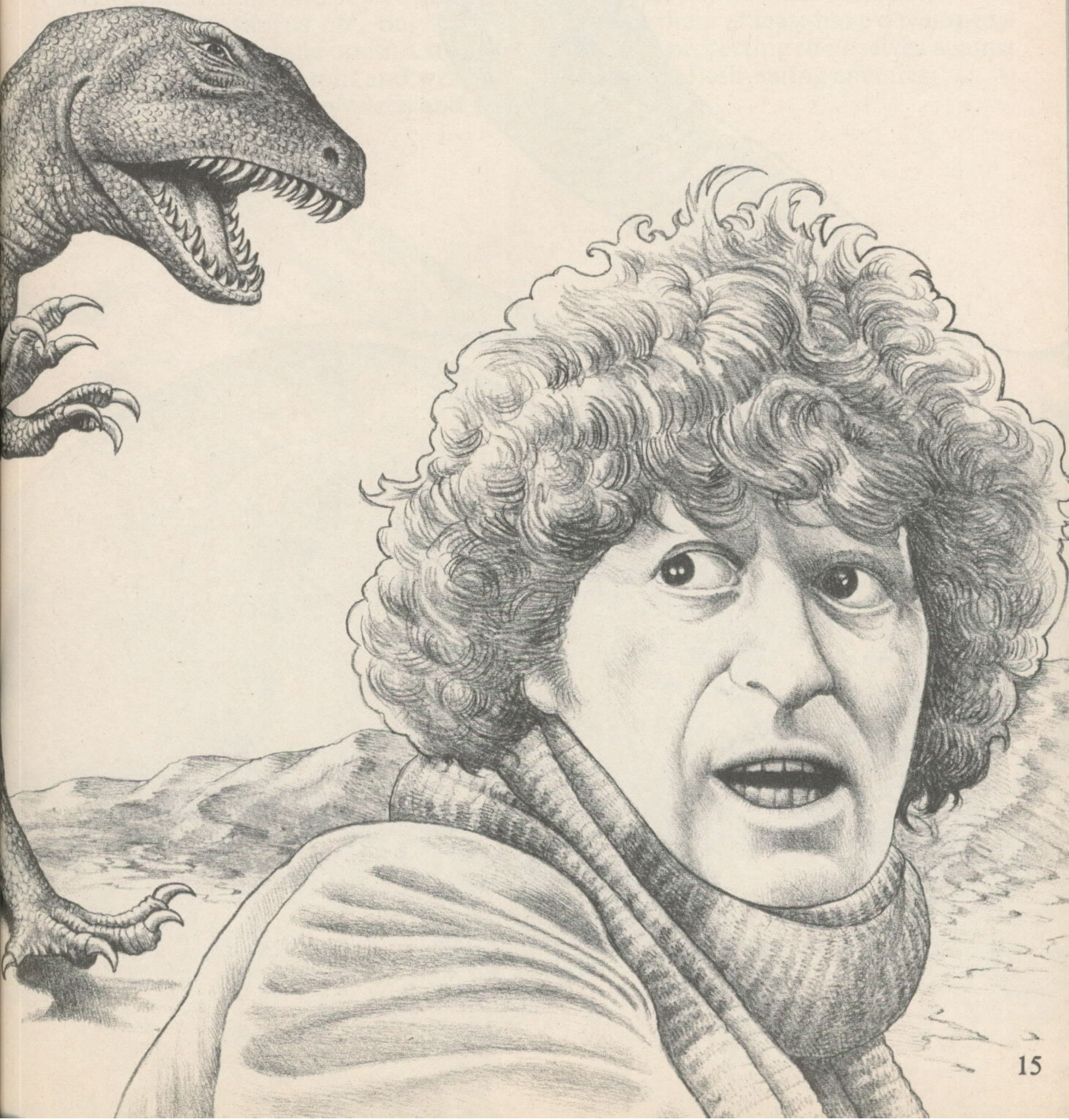
ALLOS

Here comes the Allosaurus! Not nearly as big as our placid friend, but a hundred times as nasty . . . Three metres high, and ten metres long from nose to tail. Look at those claws and those rows of razor-sharp teeth. You can guess what he lives on – and it isn't weeds and plants.

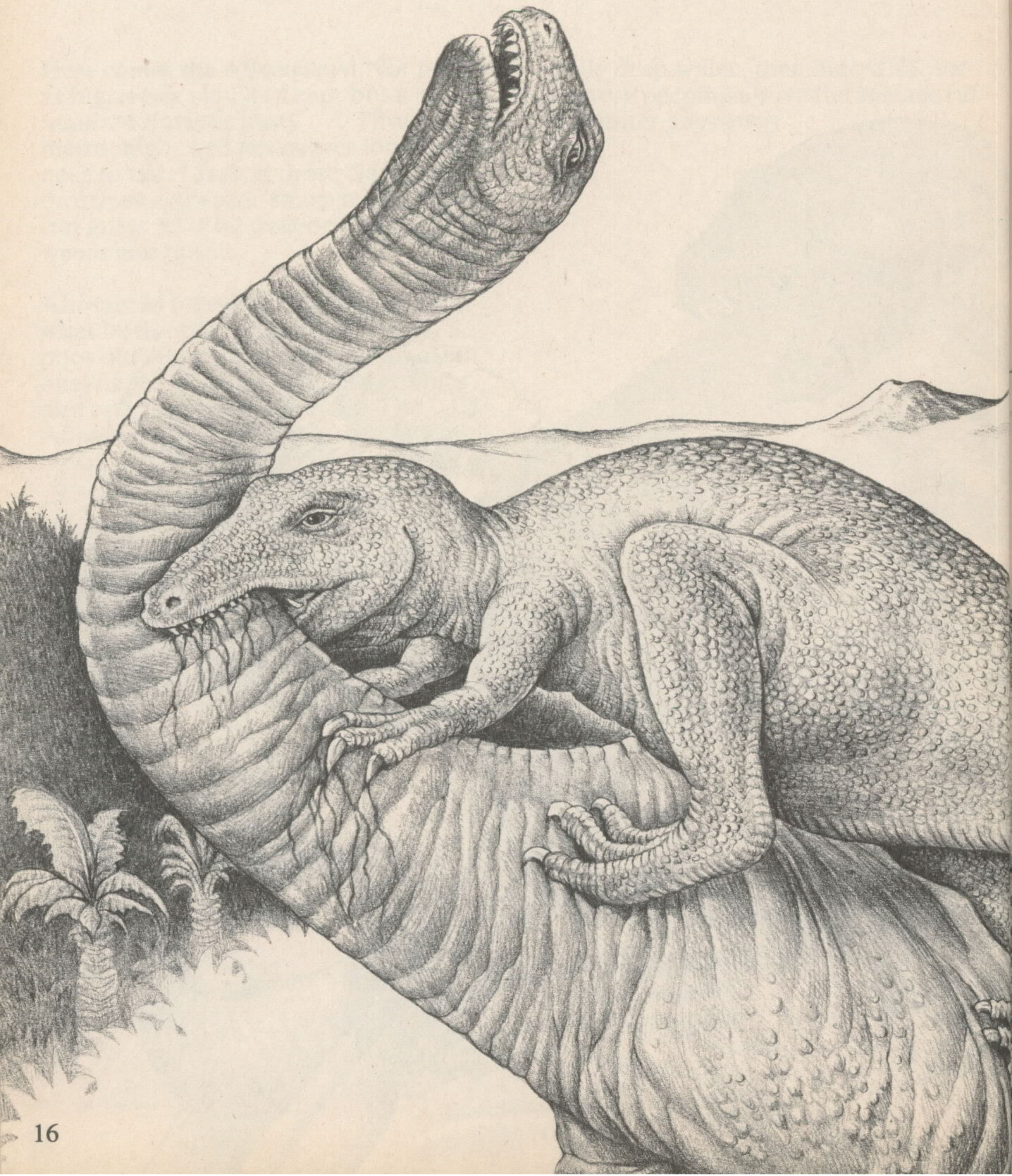
Allosaurus is another flesh-eater, and what he likes for dinner, of course, is poor old Apatosaurus! If he can catch one, he tears him to bits, and gobbles him up in enormous chunks! The Allosaurus's only hope is to get into really deep water, then hide with just his nose peeping above the surface till his hunter goes away . . .



AURUS



ALLOSAURUS V

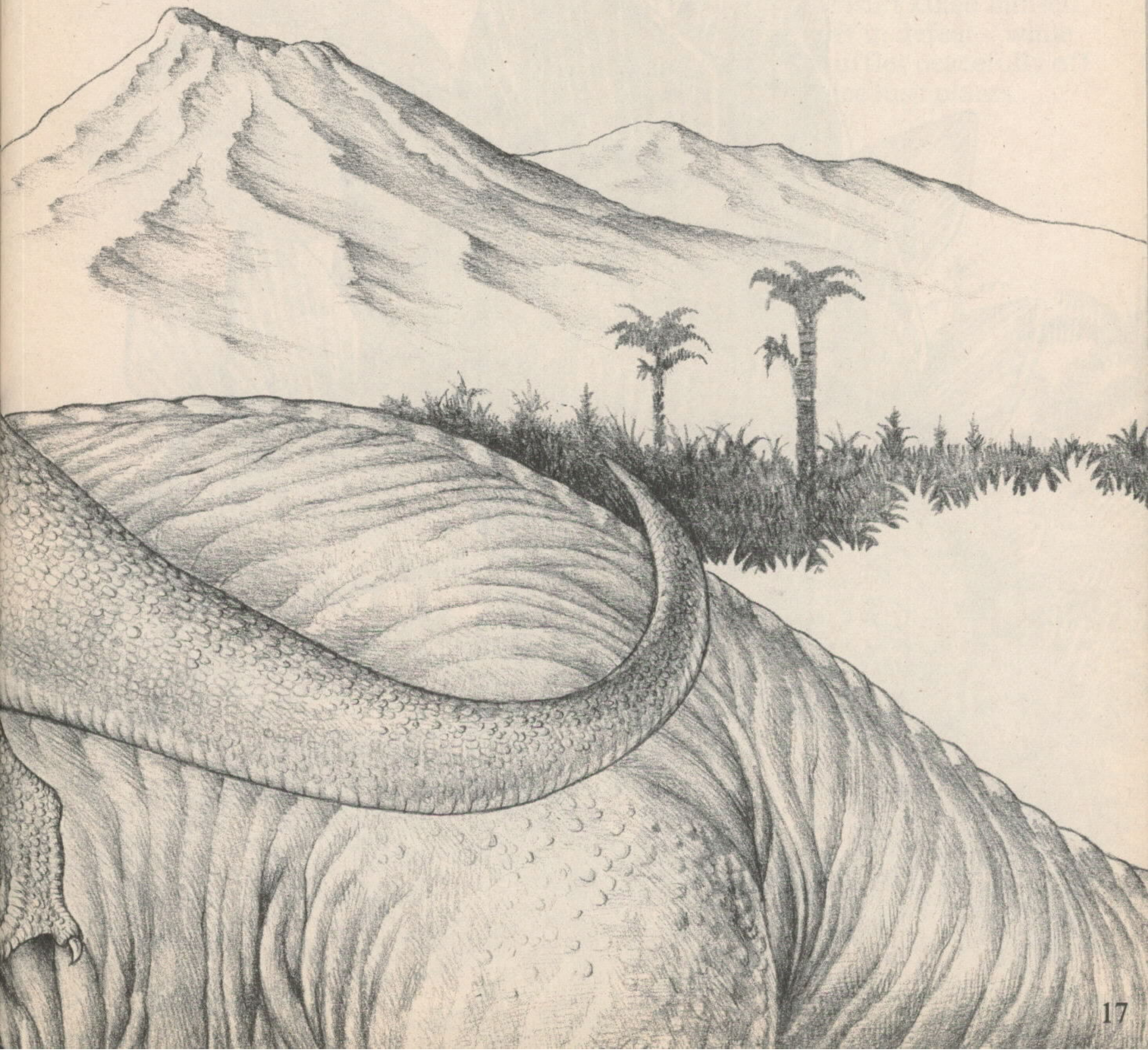


APATOSAURUS

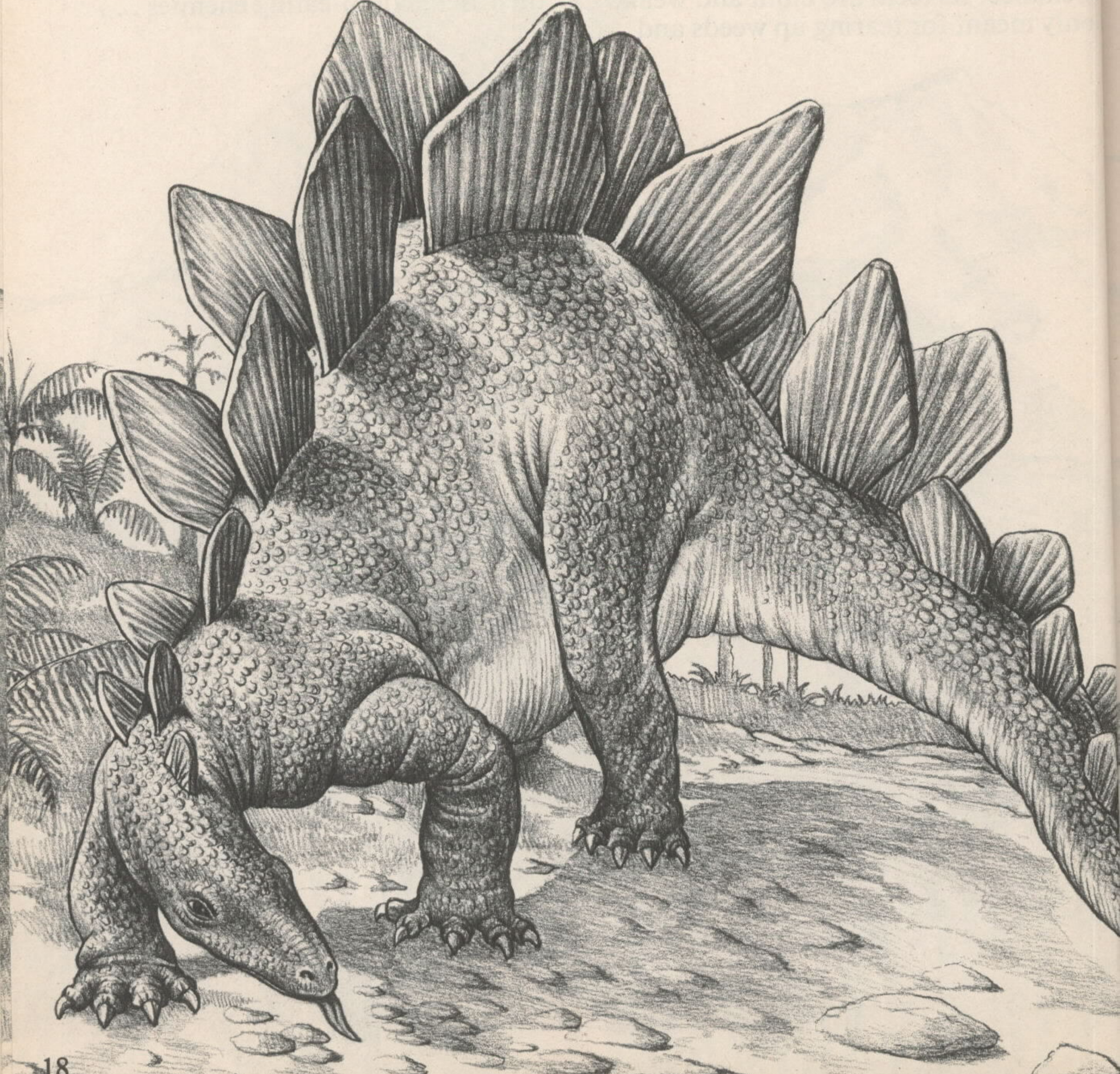
As you see, this one wasn't so lucky. The smaller Allosaurus is much quicker-moving, and far more savage and hungry! He sinks his teeth into the Apatosaurus's neck and rips into him with those terrible claws.

It takes quite a long time before he can finish the Apatosaurus off, but for all its size, the bigger reptile doesn't stand a chance. Its teeth are blunt and weak, only meant for tearing up weeds and plants. Its only defence is escape, but it's so slow-moving that even that doesn't offer much hope.

It's a fierce and cruel time, this Age of the Dinosaurs, where the strong prey on the weak. But not all the vegetarians are as helpless as the Apatosaurus. Some of them at least have developed means of protecting themselves against their fierce flesh-eating enemies . . .



ALLOSAURUS
V
STEGOSAURUS



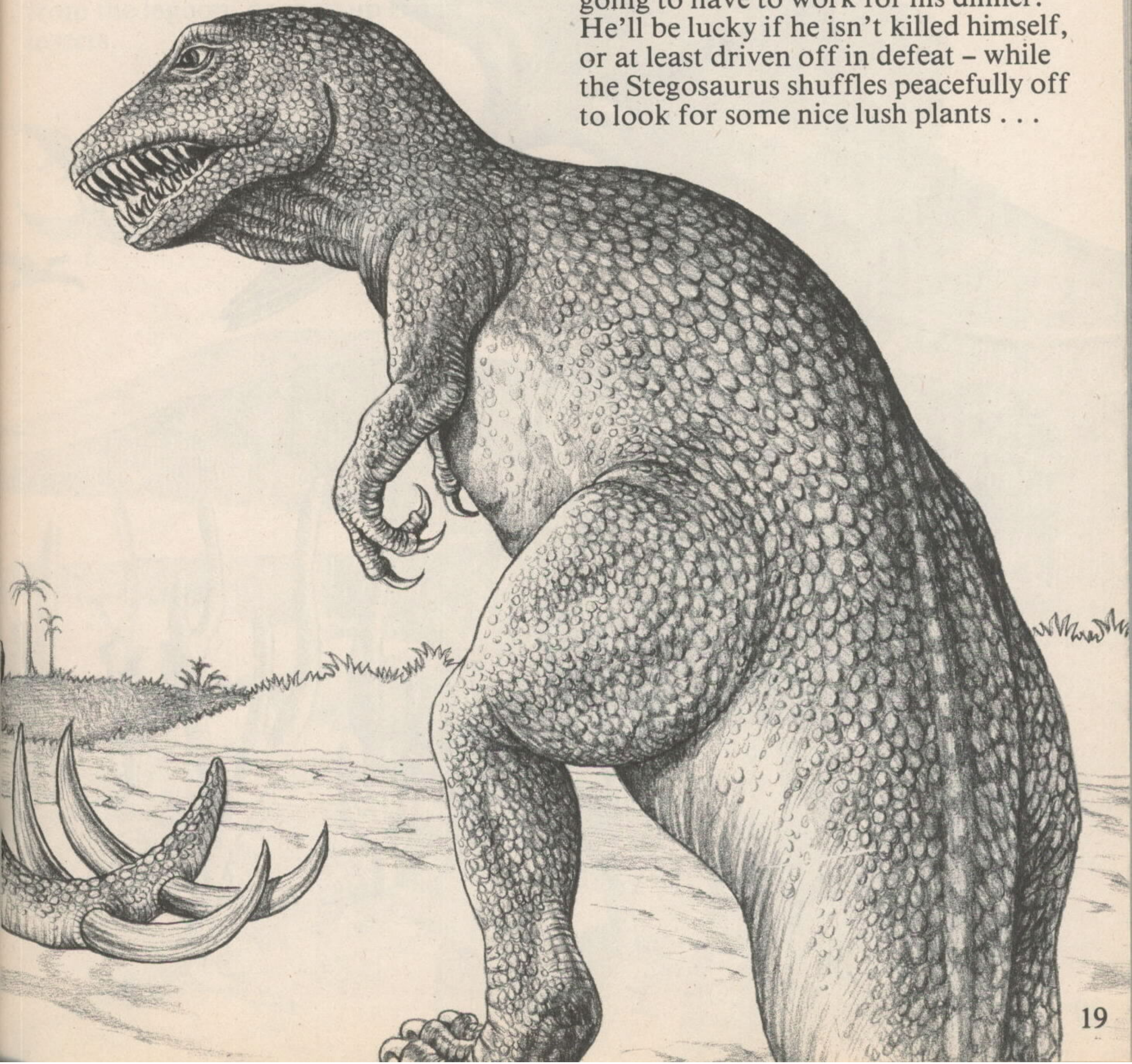
Here's an Allosaurus who is just about to bite off more than he can chew. He's picked on the Stegosaurus – another plant-eater like the Apatosaurus, but one far more able to protect himself. For one thing, he's got a suit of armour – that double row of pointed bony plates along his back.

The Stegosaurus was about six metres long, and as you can see his shape is peculiar to say the least. His back legs are so much longer than his front ones that when he's on the move his nose is always on the ground, and his tail is right up in the air!

But although he may look a bit funny, the Stegosaurus is no fool. Take another look at that tail. It's so long it makes up half his entire length. It's strong and powerful, *two* pairs of spikes on the end. Those spikes are each about a metre long, and very sharp – as the Allosaurus is just about to find out.

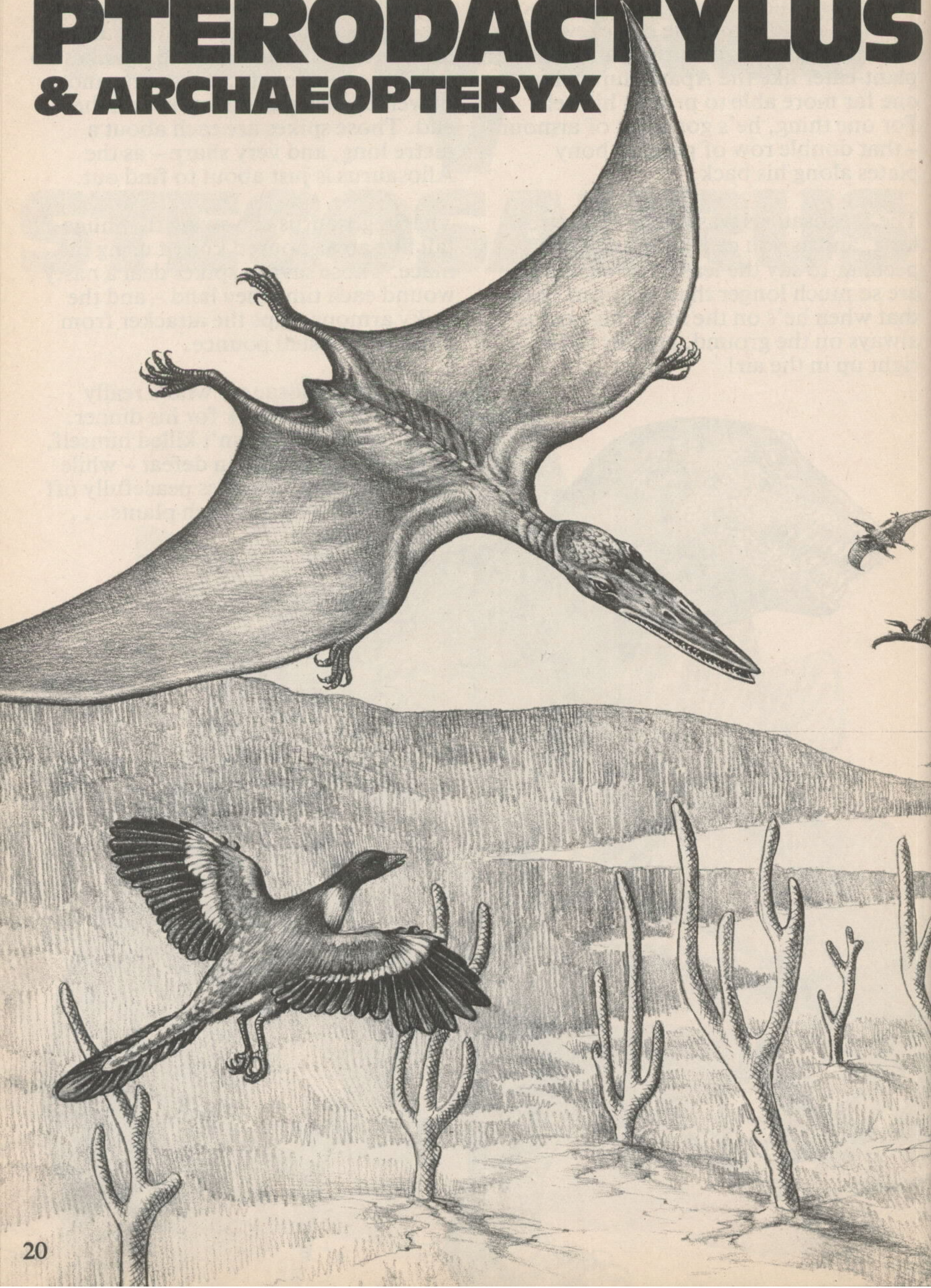
The Stegosaurus can swing that huge tail like an armoured knight using his mace. Those savage spikes deal a nasty wound each time they land – and the spiky armour stops the attacker from making his usual pounce.

Here's one Allosaurus who's really going to have to work for his dinner. He'll be lucky if he isn't killed himself, or at least driven off in defeat – while the Stegosaurus shuffles peacefully off to look for some nice lush plants . . .



PTERODACTYLUS

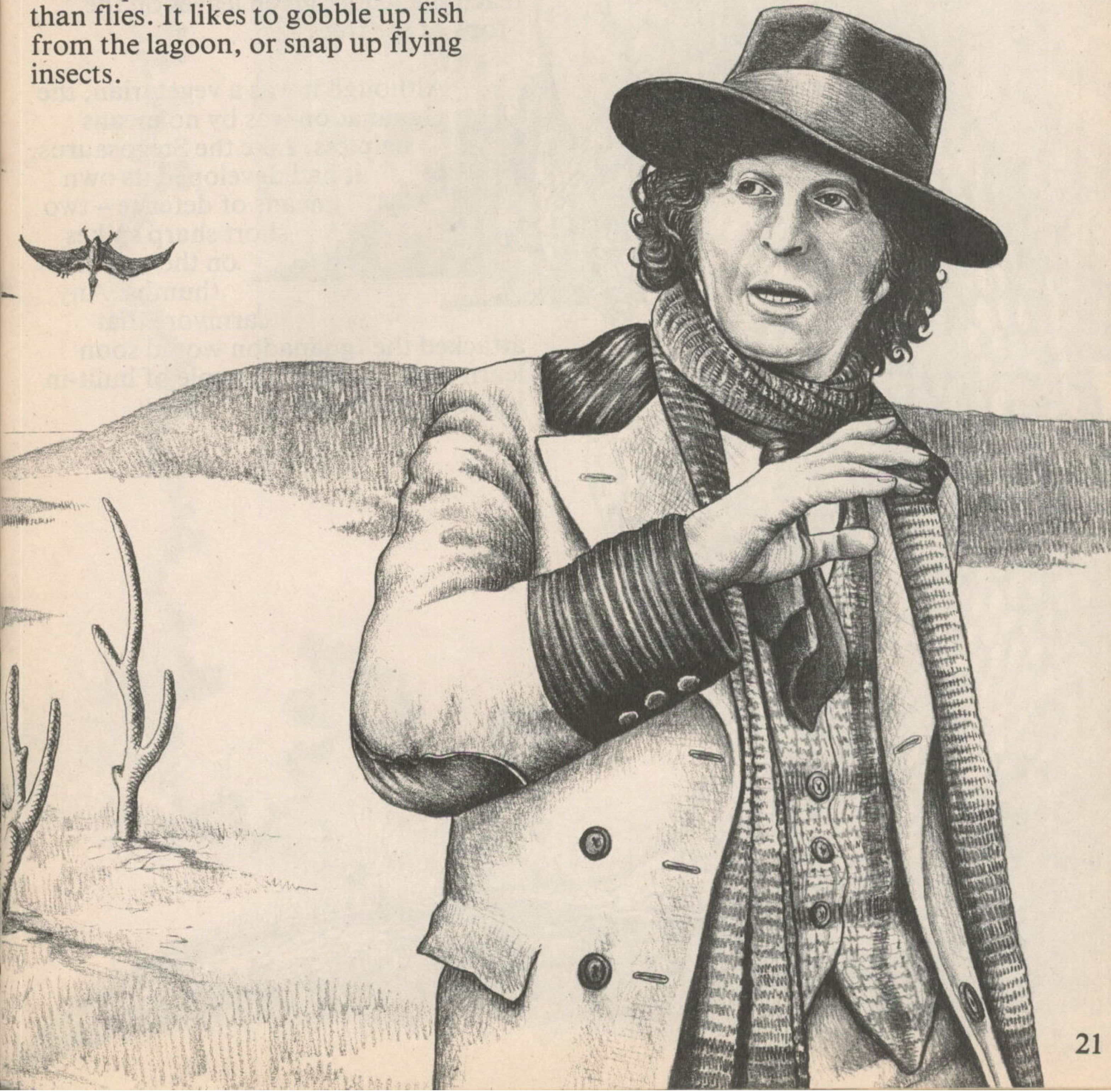
& ARCHAEOPTERYX

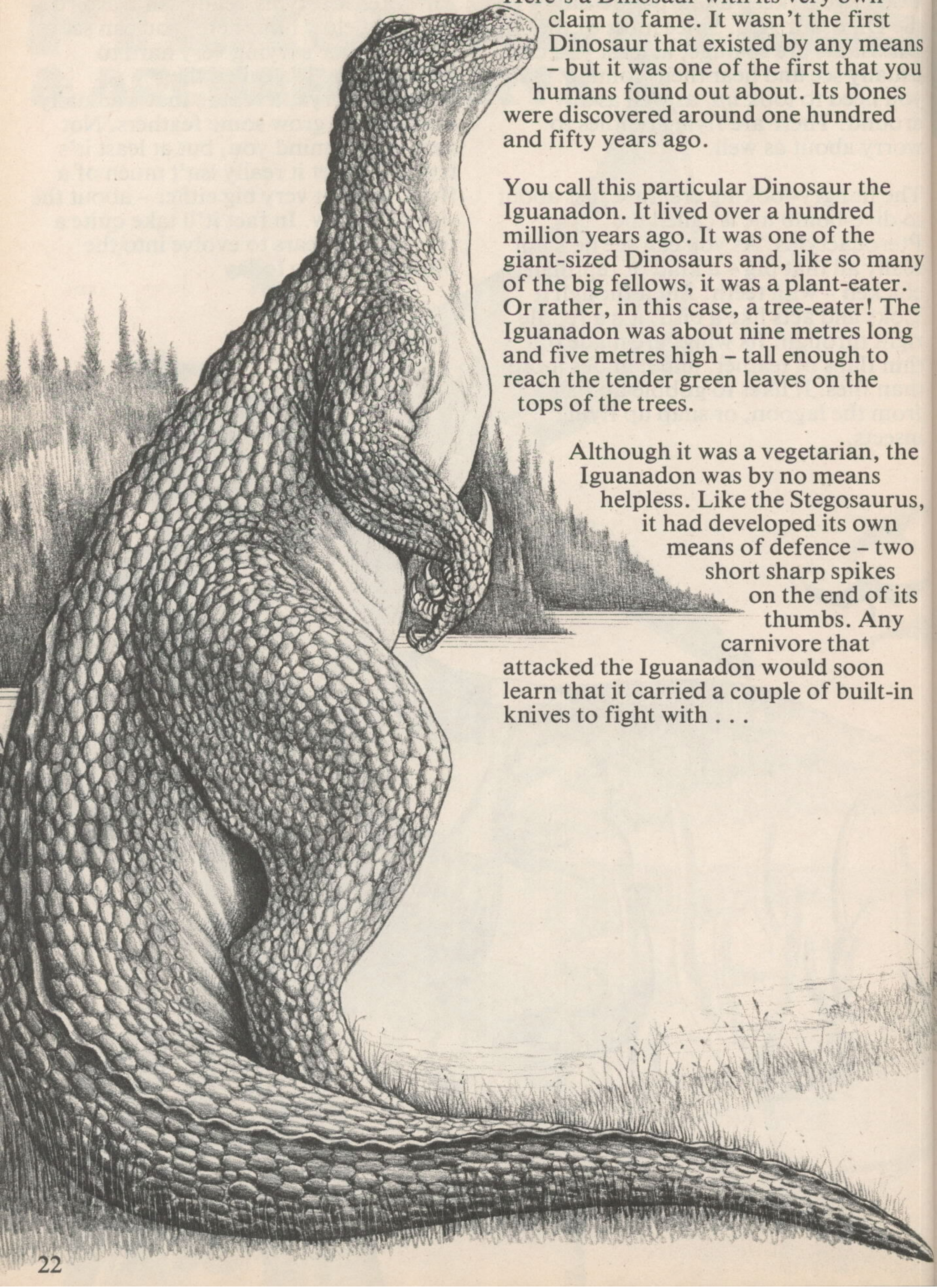


You have to keep a sharp look out in the Dinosaur Age. Since most of the Dinosaurs are so huge, at least you can usually see and hear them coming. But you need to look *up,* as well as all around. There are flying reptiles to worry about as well.

The hungry-looking creature just about to dive-bomb me is called the Pterodactylus. As you can see he's not really all that big – a kind of reptilian chicken – with teeth! But although it looks and acts like a bird, it's a reptile right through. Its wings are made of thin flaps of leather, and it glides more than flies. It likes to gobble up fish from the lagoon, or snap up flying insects.

The Pterodactylus really isn't a bird – but just below him there, you can see a creature that's trying very hard to become one. It's called the Archaeopteryx, a reptile that's actually managed to grow some feathers. Not very many, mind you, but at least it's trying! As yet it really isn't much of a flyer. It's not very big either – about the size of a crow. In fact it'll take quite a few million years to evolve into the birds you know today . . .





Here's a Dinosaur with its very own claim to fame. It wasn't the first Dinosaur that existed by any means – but it was one of the first that you humans found out about. Its bones were discovered around one hundred and fifty years ago.

You call this particular Dinosaur the Iguanadon. It lived over a hundred million years ago. It was one of the giant-sized Dinosaurs and, like so many of the big fellows, it was a plant-eater. Or rather, in this case, a tree-eater! The Iguanadon was about nine metres long and five metres high – tall enough to reach the tender green leaves on the tops of the trees.

Although it was a vegetarian, the Iguanadon was by no means helpless. Like the Stegosaurus, it had developed its own means of defence – two short sharp spikes on the end of its thumbs. Any carnivore that attacked the Iguanadon would soon learn that it carried a couple of built-in knives to fight with . . .

IGUANADON

ANKYLO

This chap here has really brought armour-plating to a fine art. His name is Ankylosaurus, and although he's another plant-eater, the sharpest-toothed attacker would find him a very tough nut indeed! If you've ever tried to crack a very thick-skinned walnut with your teeth, you'll know how his enemies must have felt.

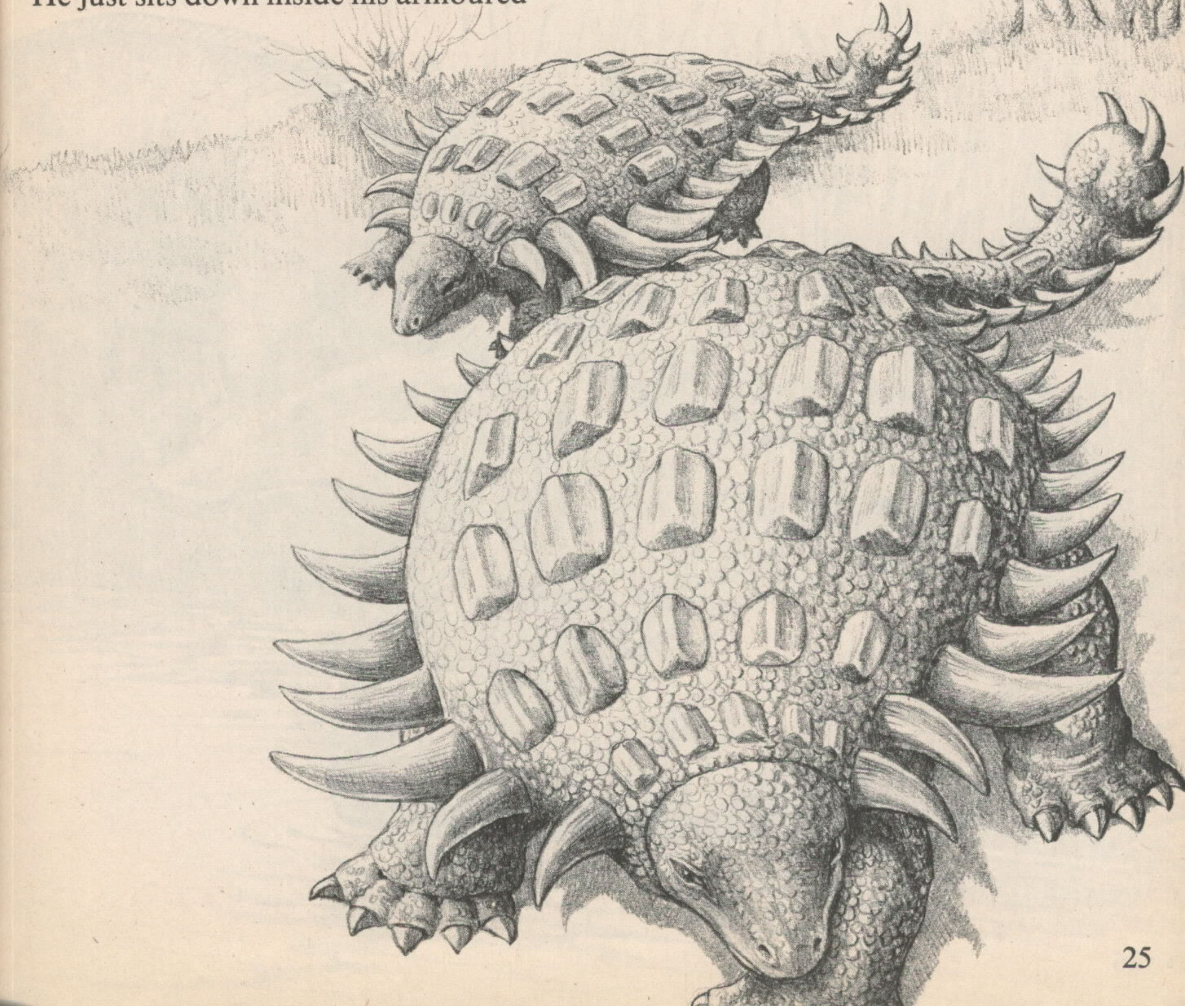
Ankylosaurus isn't just bone-headed, he's bone-bodied too! He's protected all over by lumps of bone, set into a

SAURUS

tough, flexible skin. So his armour isn't a solid lump, like one of today's turtles, it's far more pliable.

He isn't all that big as Dinosaurs go. Only about four metres long and one and a half metres high. But he's still a very formidable opponent – the armoured tank of the Dinosaur world.

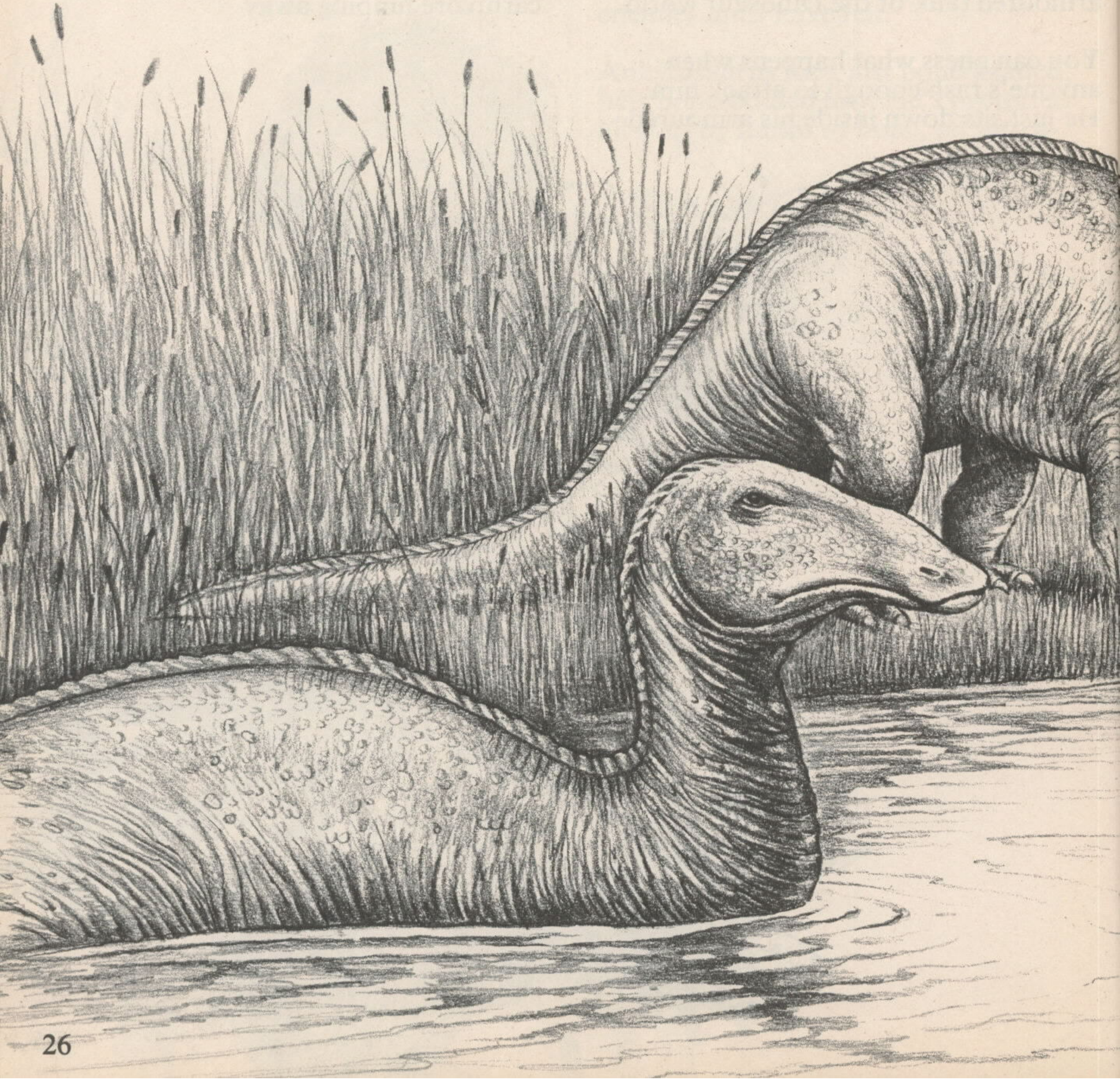
You can guess what happens when anyone's rash enough to attack him. He just sits down inside his armoured body and waits. Trying to bite him is like trying to eat a rock. But he's got more strong defences in his favour. He can attack too. That long thick tail has a lump of solid bone on the end and he can whizz it round like a club. One good bonk from an Ankylosaurus could send the hungry carnivore limping away.



ANATOSAURUS

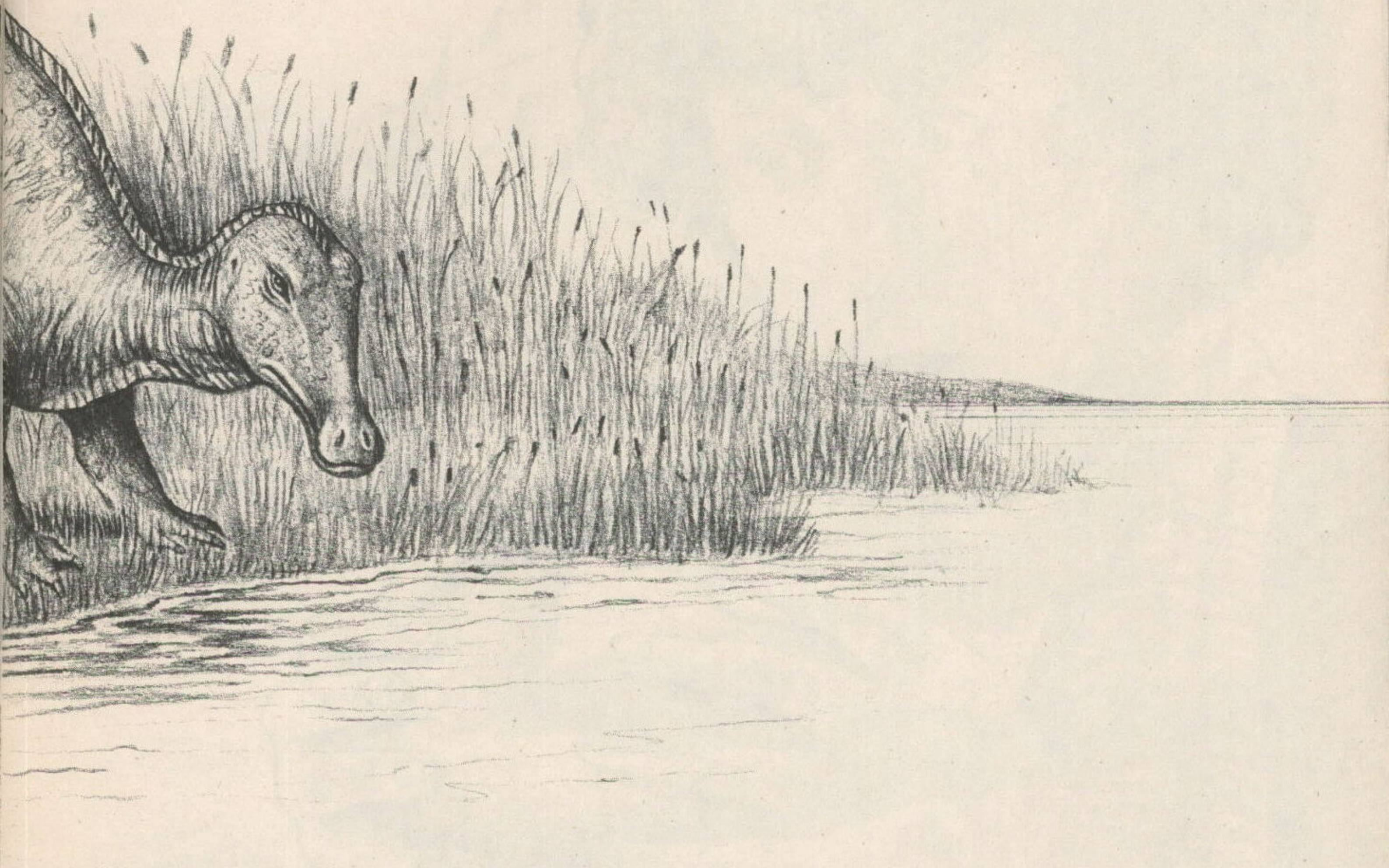
The case of the duck-billed Dinosaur . . . We've jumped forward quite a bit, now. In fact we're a mere eighty million years before your own time. You've probably heard of the duck-billed platypus, that strange egg-laying mammal that still survives in Australia. But did you know there was a duck-billed Dinosaur too?

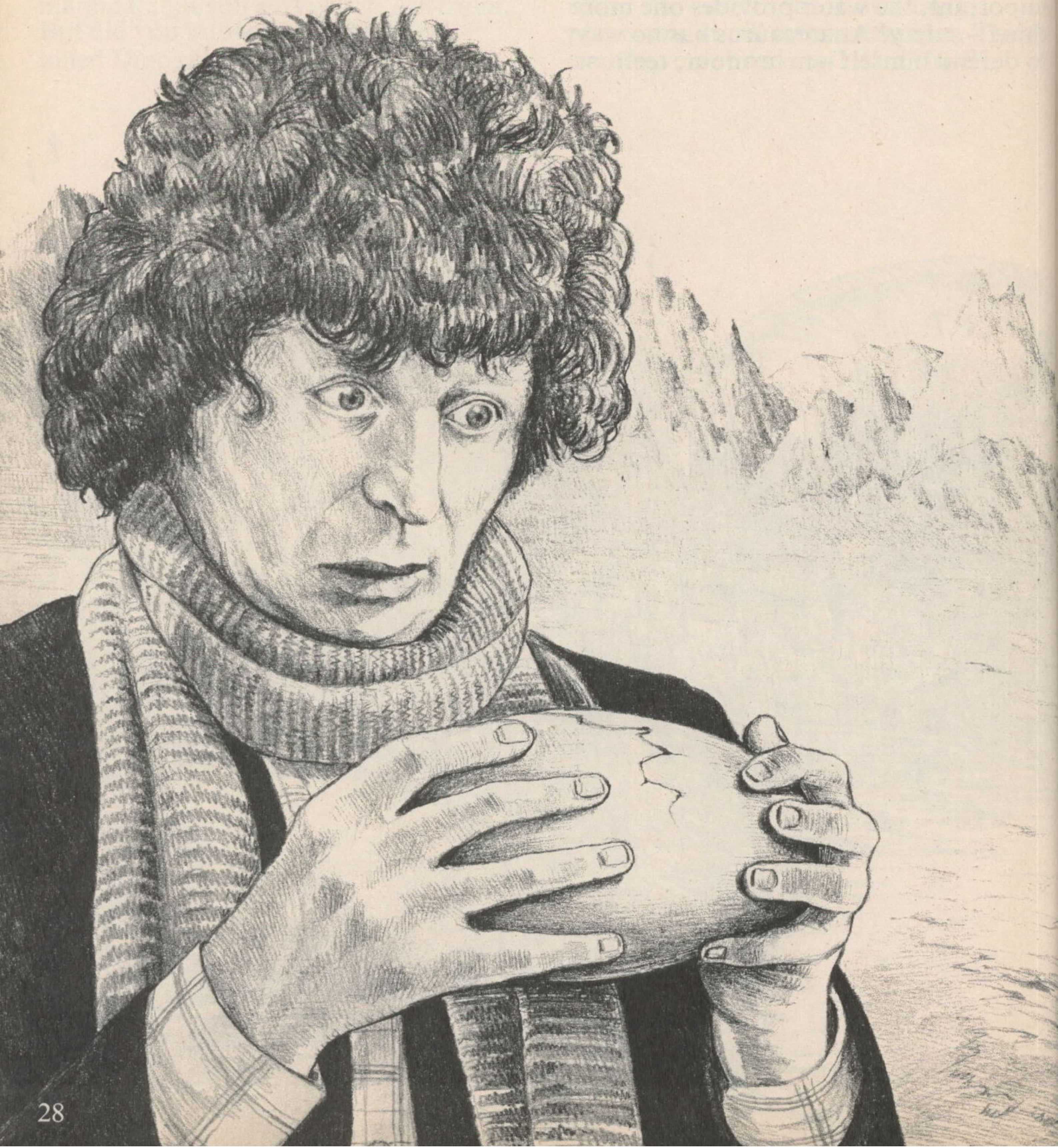
They were very common at this particular time-period. Much bigger than a duck of course – nine metres long and four metres high. But in some ways they really were quite duck-like. There's that oddly-shaped 'bill' for a start. Very useful for shovelling up plants and small water-creatures. They even have webbed feet! And finally,



just like a real duck, they spend a great deal of their time in or near the water.

There are very good reasons for this. They get most of their food from the shores of rivers or lagoons. Equally important, the water provides one more thing – safety! Anatosaurus has no way to defend himself – no armour, teeth or fighting-claws. But he does have one big asset. He's a champion swimmer. One whiff of a savage flesh-eater and he's away, doing a fast Dinosaur-paddle towards the safety of deep water.

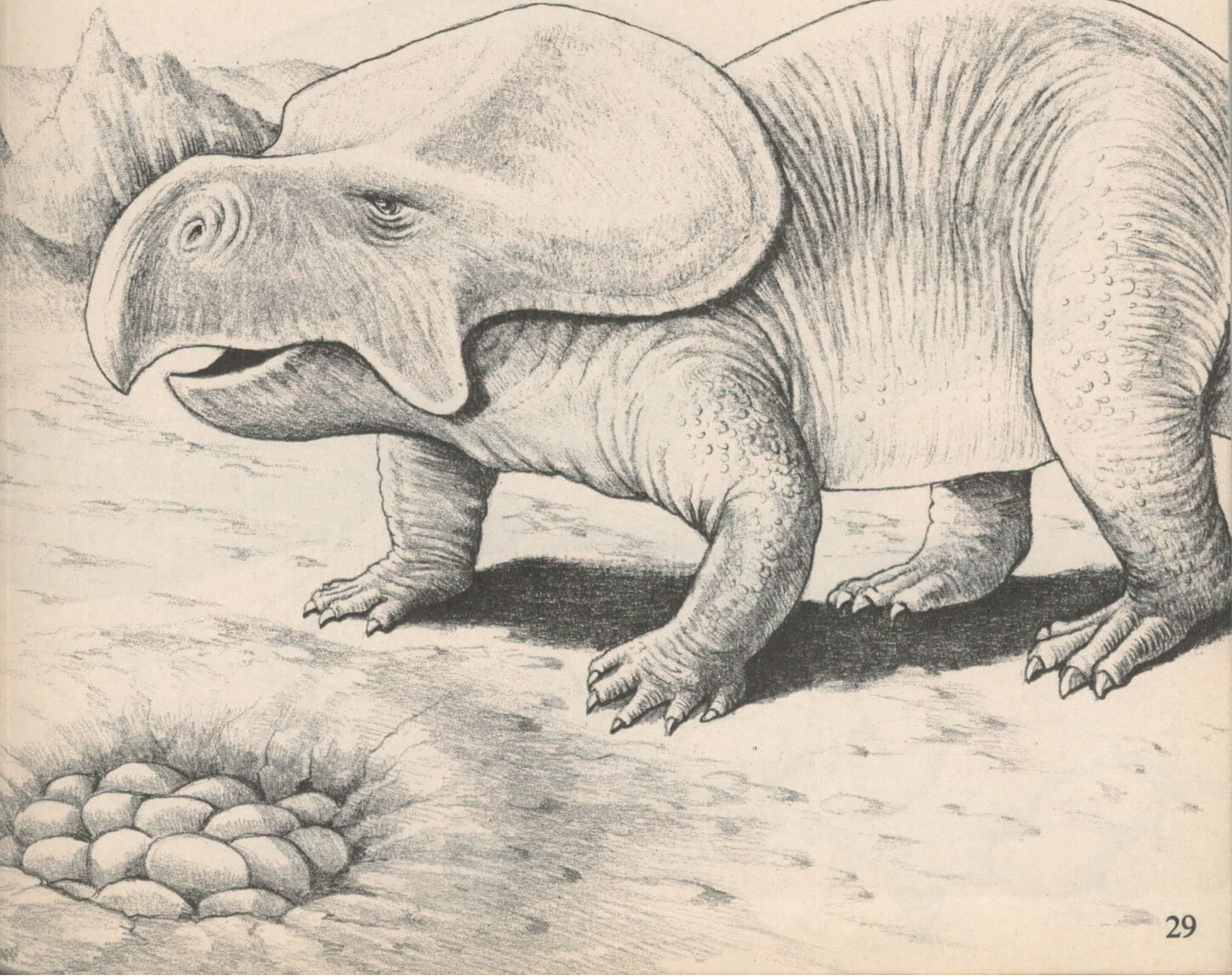




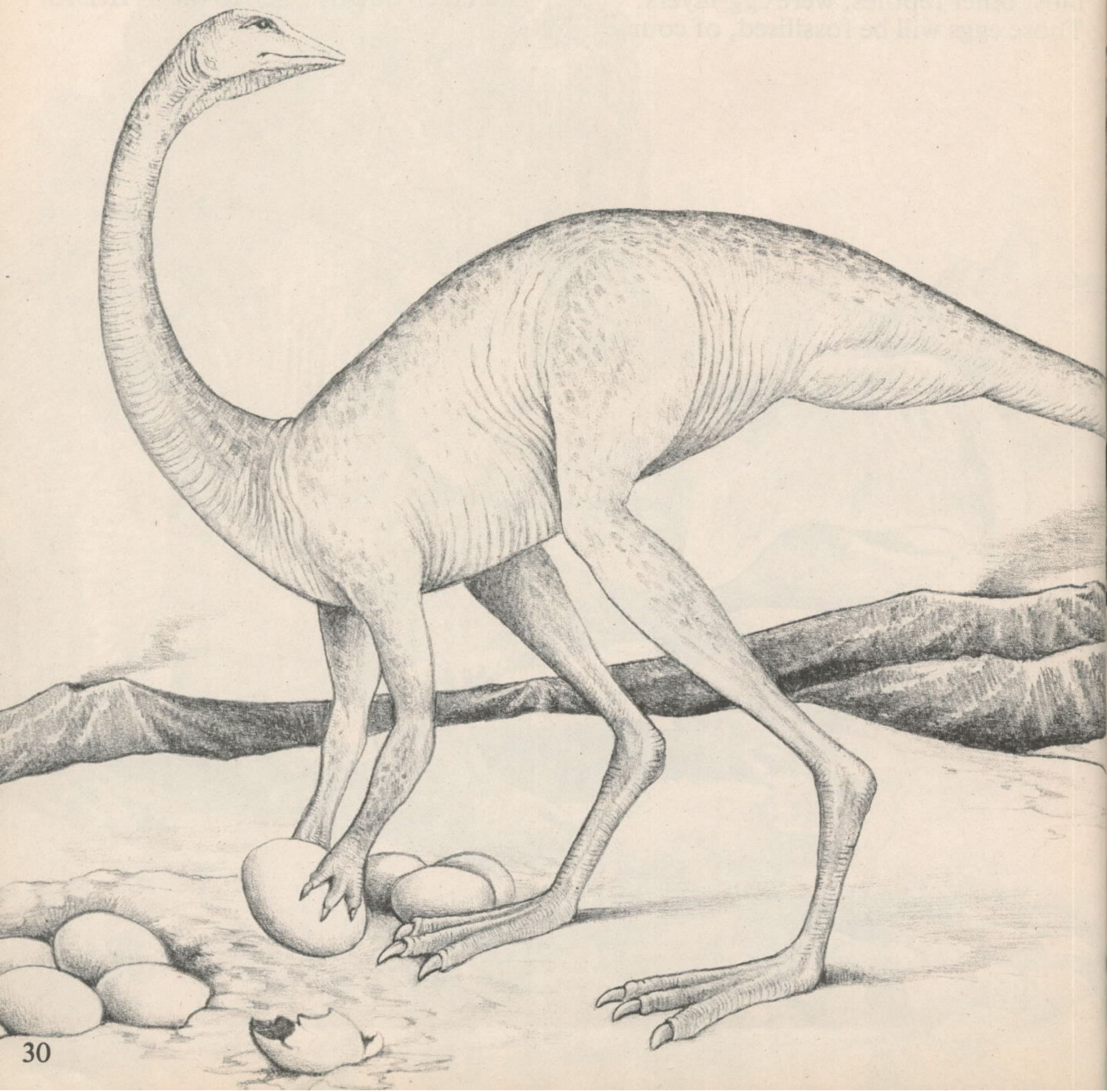
PROTOCERATOPS

A backwards time-jump now, to about one hundred million years ago. And here's a very interesting discovery – a nest of Dinosaur eggs. How about one of these, lightly boiled for your breakfast?

Eggs like these will be discovered, millions of years later, by human scientists, proving that Dinosaurs, like most other reptiles, were egg-layers. Those eggs will be fossilised, of course – and one thing the scientist then won't have to worry about is an angry mum Protoceratops, wondering who's interfering with her eggs. As you can see she's not very big for a Dinosaur, just over two metres long. She's got a bony shield growing over her face, and a rather parrot-like beak. Oh, and one thing more . . . she's in a *very* bad temper. I think I'll put down her egg and creep quietly back to the TARDIS.



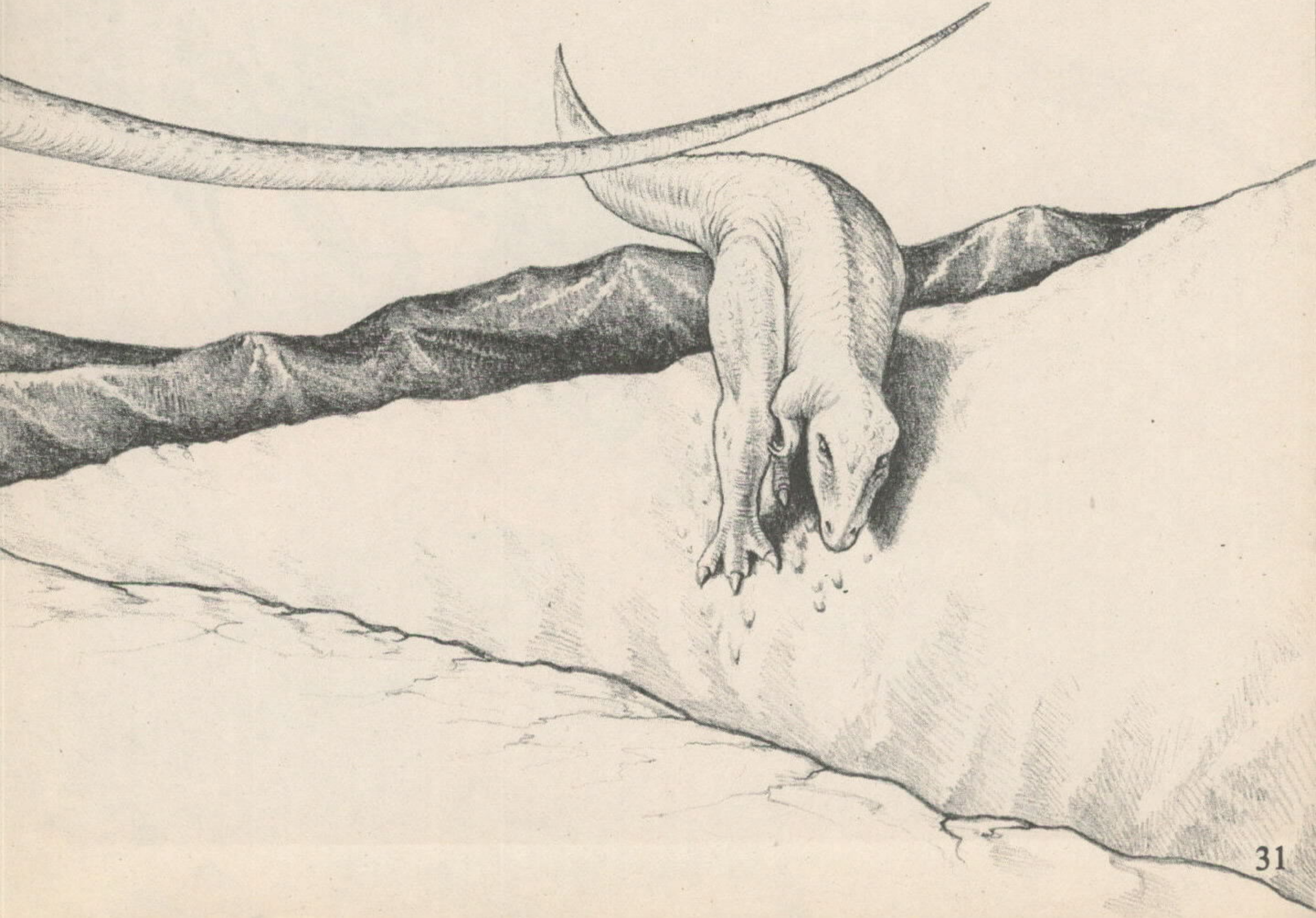
STRUTHIOMIMUS & ALBERTOSAURUS



Jump forwards again, to about seventy-five million years ago, and we can see that other Dinosaur eggs weren't always so lucky. Dinosaurs were rather casual about their eggs. They laid them, sprinkled a bit of sand or earth on top, then after a time they just wandered off. With so many eggs laying around, someone was bound to turn up to eat them.

This fellow is called Struthiomimus, and his name means 'ostrich dinosaur'. You can see why. He's got a sharp beak for breaking into the eggs, and long legs for making a quick getaway.

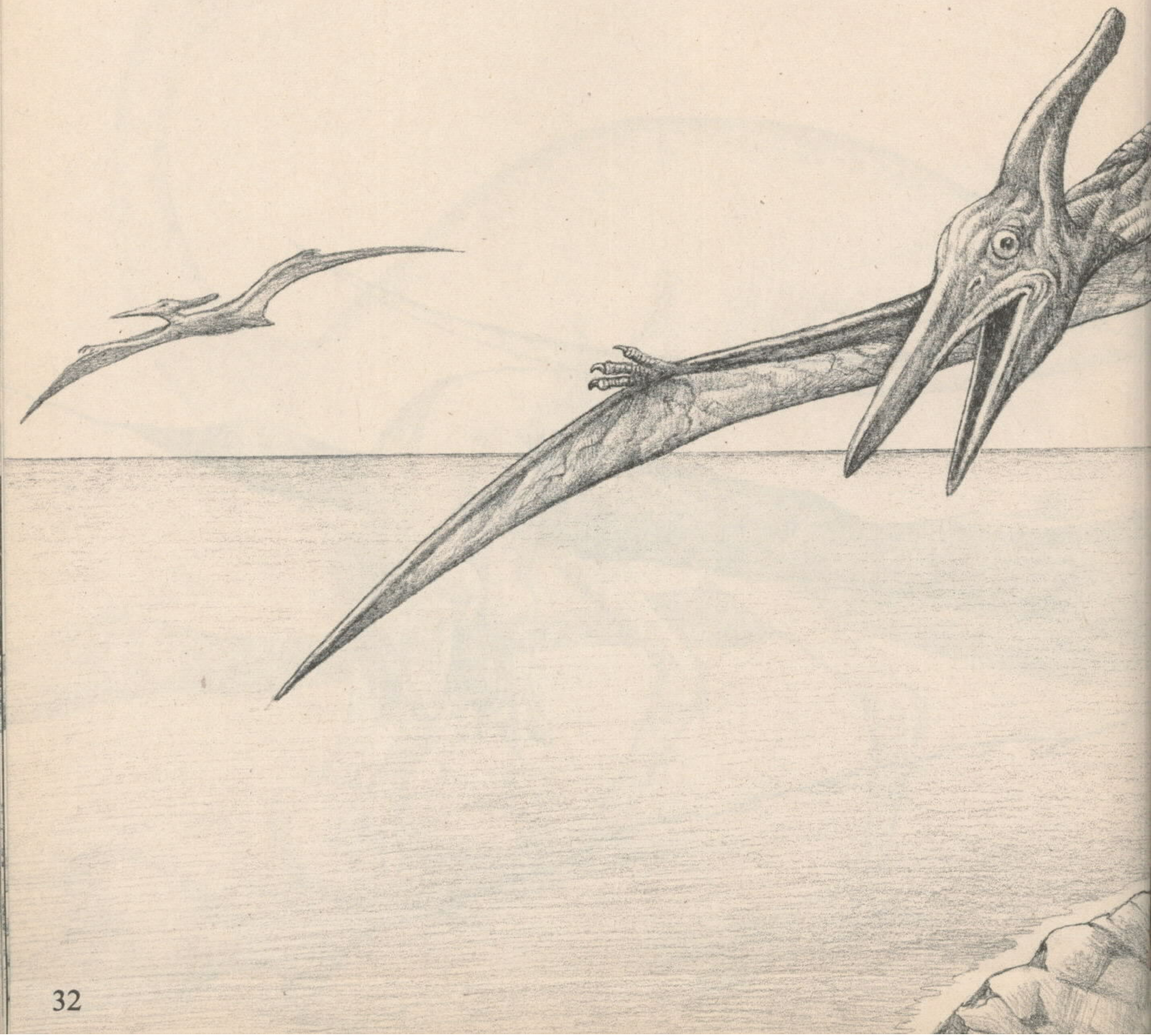
He's soon going to need that speed of his. Coming over the horizon is an Albertosaurus, a smaller relation of the terrible Tyrannosaurus, who we'll meet later on. Any minute now our egg-robbing friend will be no more than a disappearing dot in the distance. If they'd ever invented Dinosaur racing, he would have been a hot favourite.

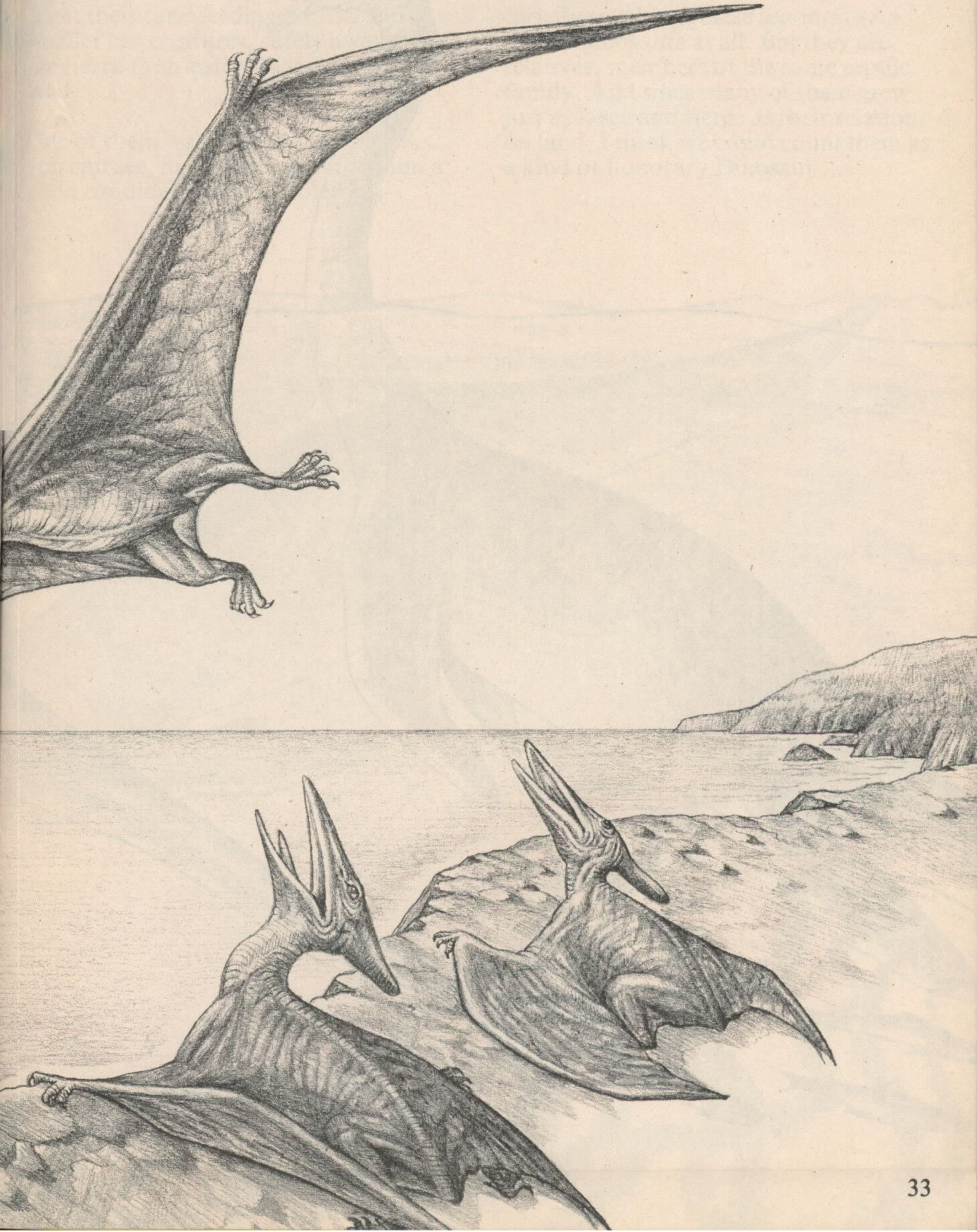


PTERANODON

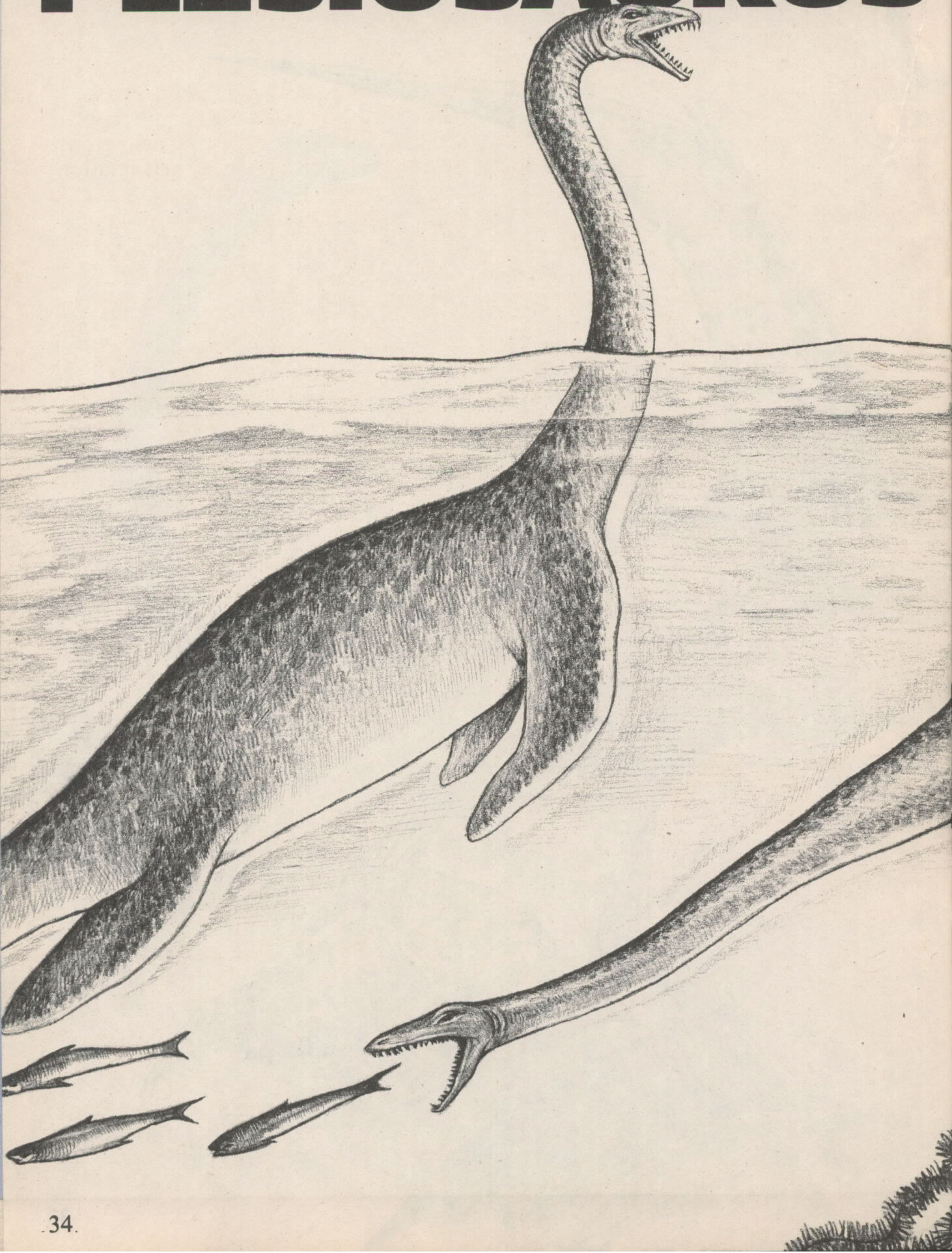
Some people have the idea that a Pterodactyl was big enough to carry you off – but as we've seen, that isn't so. There *were* big flying reptiles, though. This devoted mother is called a Pteranodon, and she's almost the size of a small aeroplane.

Like all the flying Dinosaurs, the Pteranodon is a meat-eater. She swoops down from the skies, snatches up fish or small animals, and carries them off to her ever-hungry brood. Then she's off again, gliding through the sky on her thin, leathery wings. I'd better keep out of sight, in case she decides to tempt the kiddies with a taste of Doctor for dessert.





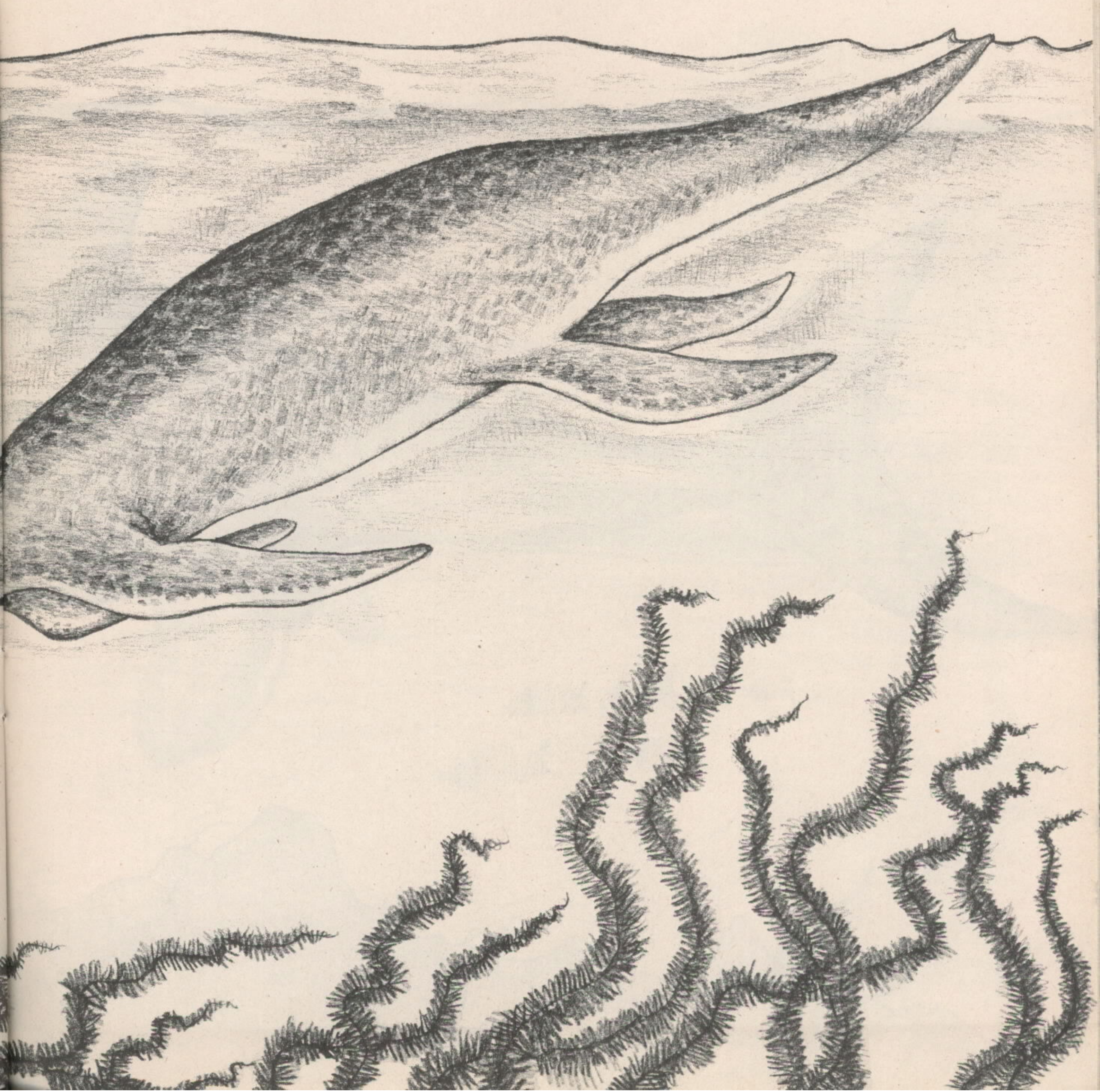
PLESIOSAURUS



Some reptiles felt there was too much competition on land, and decided to live in the sea. They developed a smoother, stream-lined shape and their legs became more like paddles. They spent their time feeding on fish and smaller sea creatures, safely away from the fierce flesh-eaters that roamed the land.

One of them was the Plesiosaurus. As you can see, his long neck makes him a good candidate for the fabled sea-serpent. Who knows, maybe a Plesiosaurus *has* survived somewhere, swimming in the depths of the oceans of your own time . . .

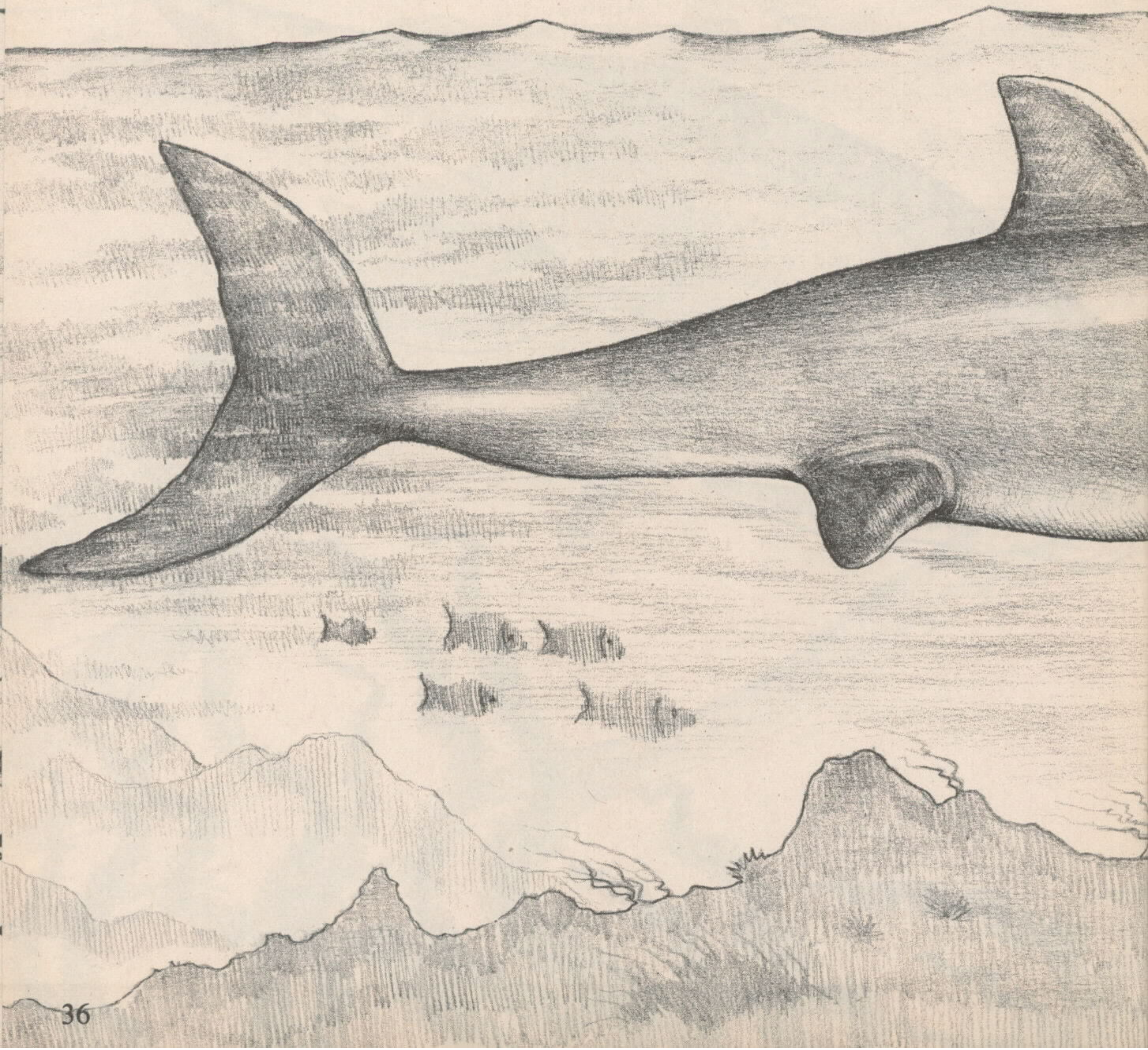
Strictly speaking, these sea-monsters aren't Dinosaurs at all. But they are relatives, members of the same reptile family. And since many of them grew just as large and fierce as their relations on land, I think we could count them as a kind of honorary Dinosaur . . .



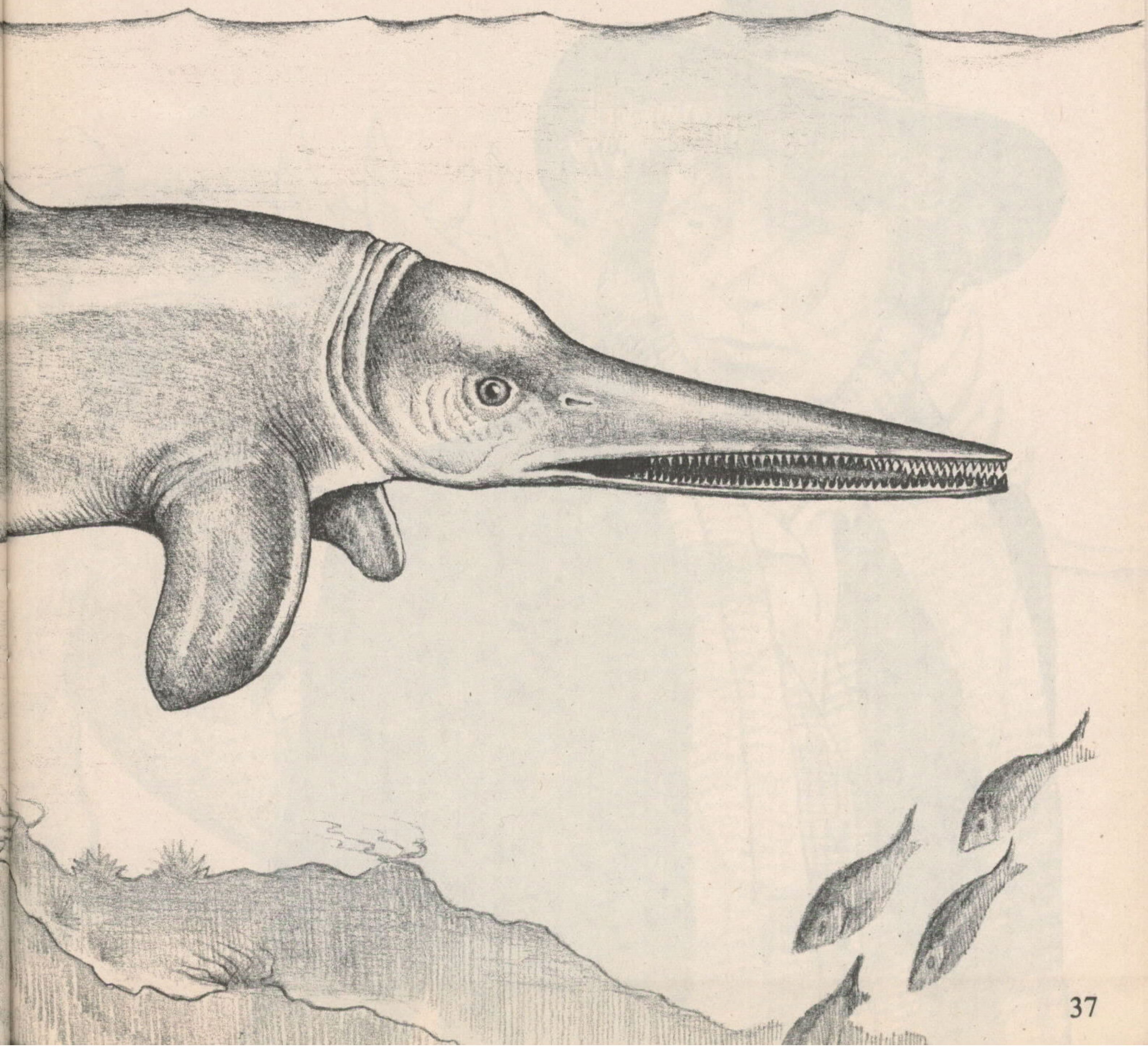
ICHTHYO

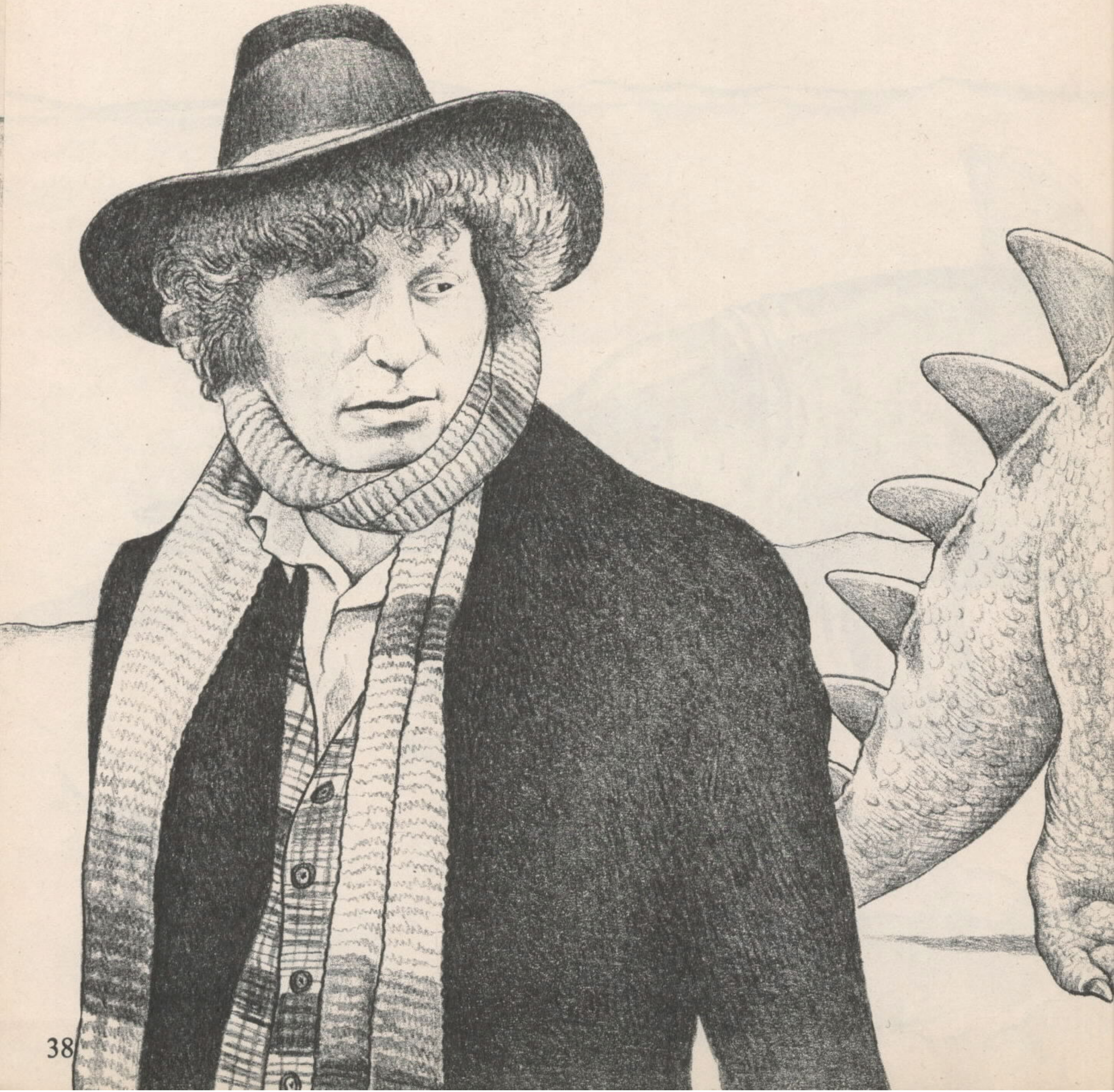
Here's another sea-monster to give the boldest of fishermen nightmares. It's called Ichthyosaurus.

See the resemblance to the shark of your own times. There's even a very shark-like fin on the back, and similar rows of sharp teeth. But Ichthyosaurus is far larger and much fiercer. He'd make a meal of any present-day shark with the greatest of ease.



OSAURUS

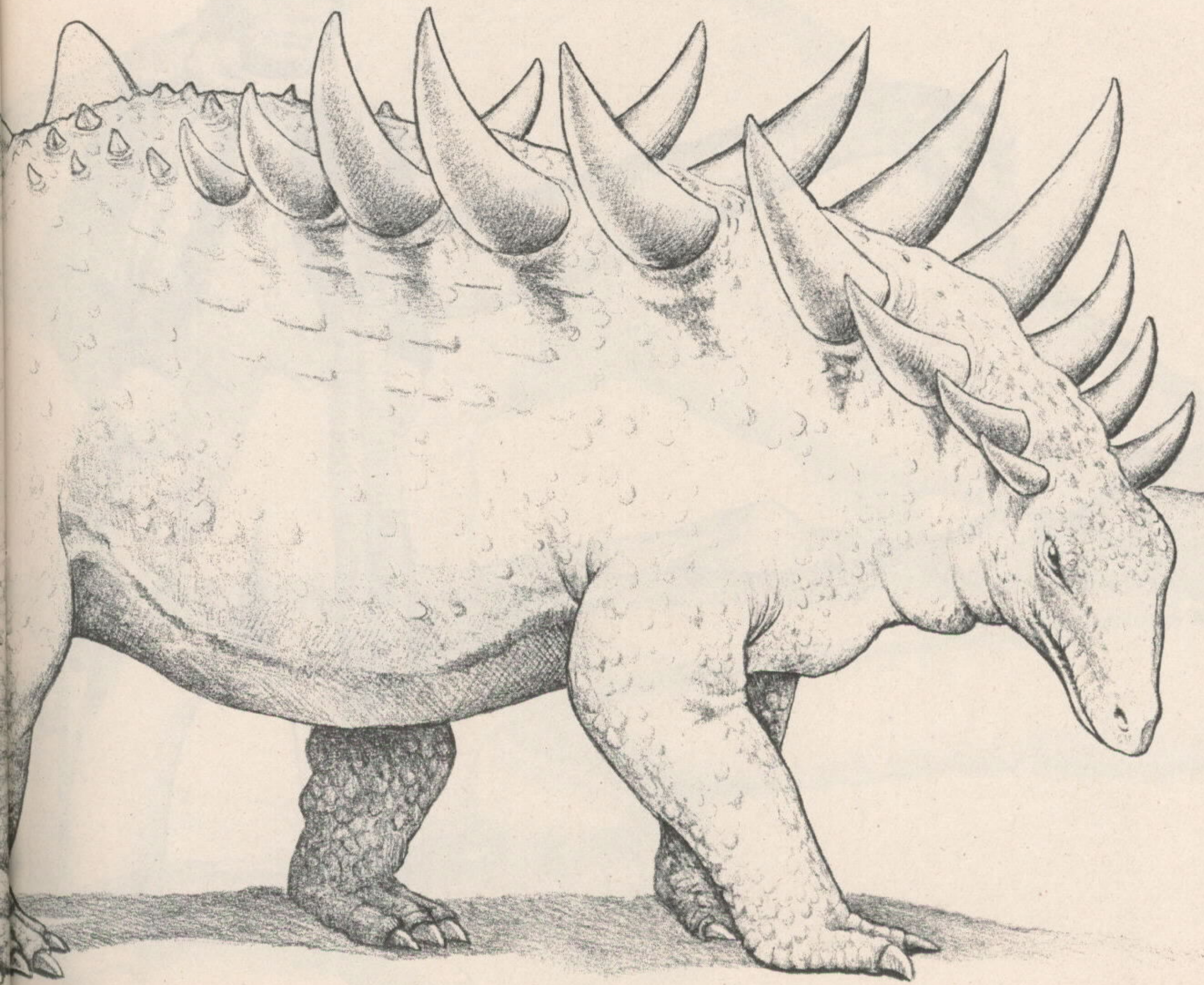




POLACANTHUS

This particular Dinosaur has a special claim to your interest. He used to live in the part of the world that's since become England, and Northern Europe. His name is Polacanthus.

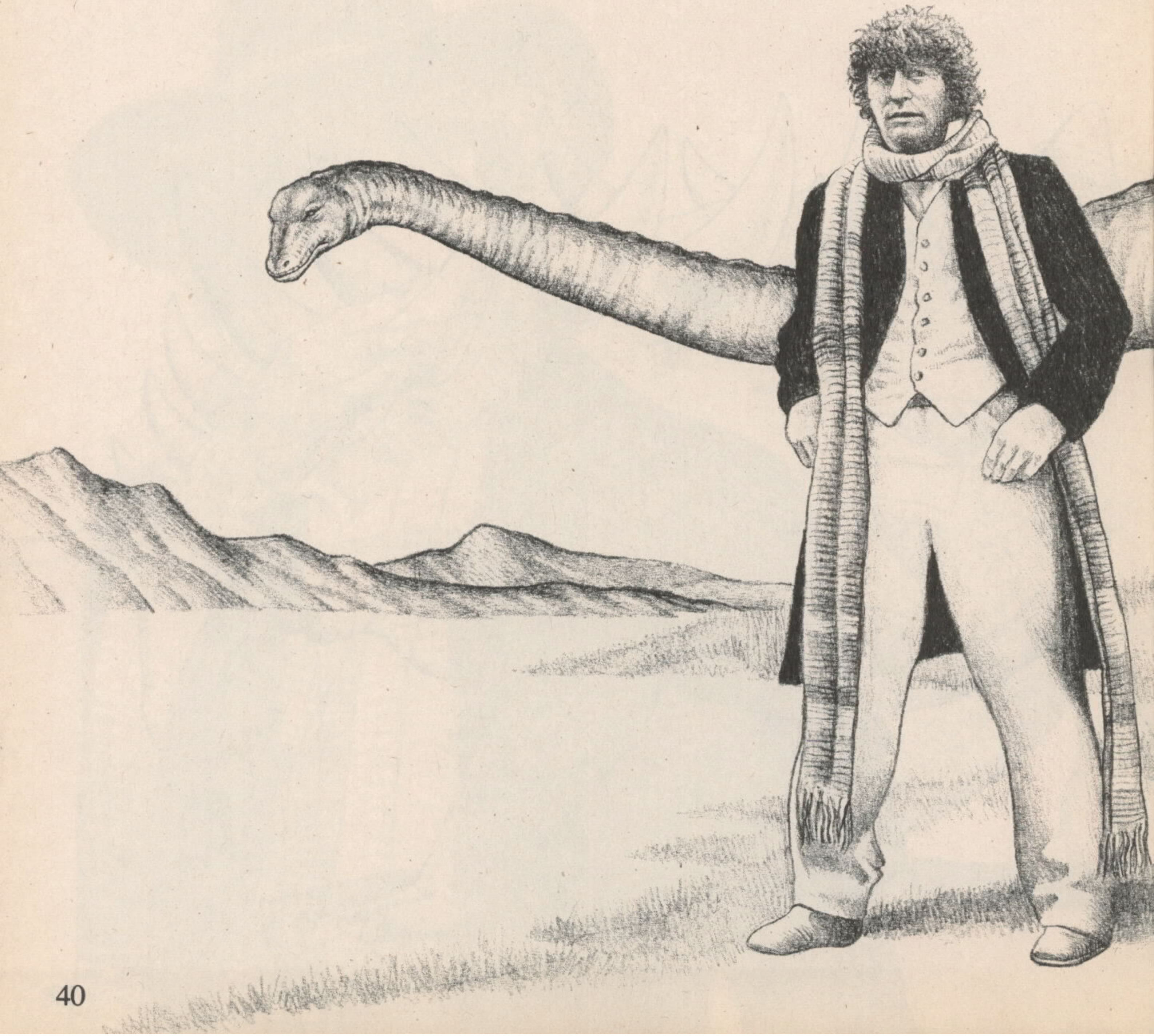
He's one of the armour-plated lot, a smaller, slimmer relative of Ankylosaurus. It's amazing how many different varieties there are – as if Nature was constantly bringing out a new design to see which worked best. This particular model comes complete with a set of big sharp horns, running along the back in a double row. It may not look a particularly smart outfit – but in an age of fierce giant flesh-eaters, it was very, very practical . . .

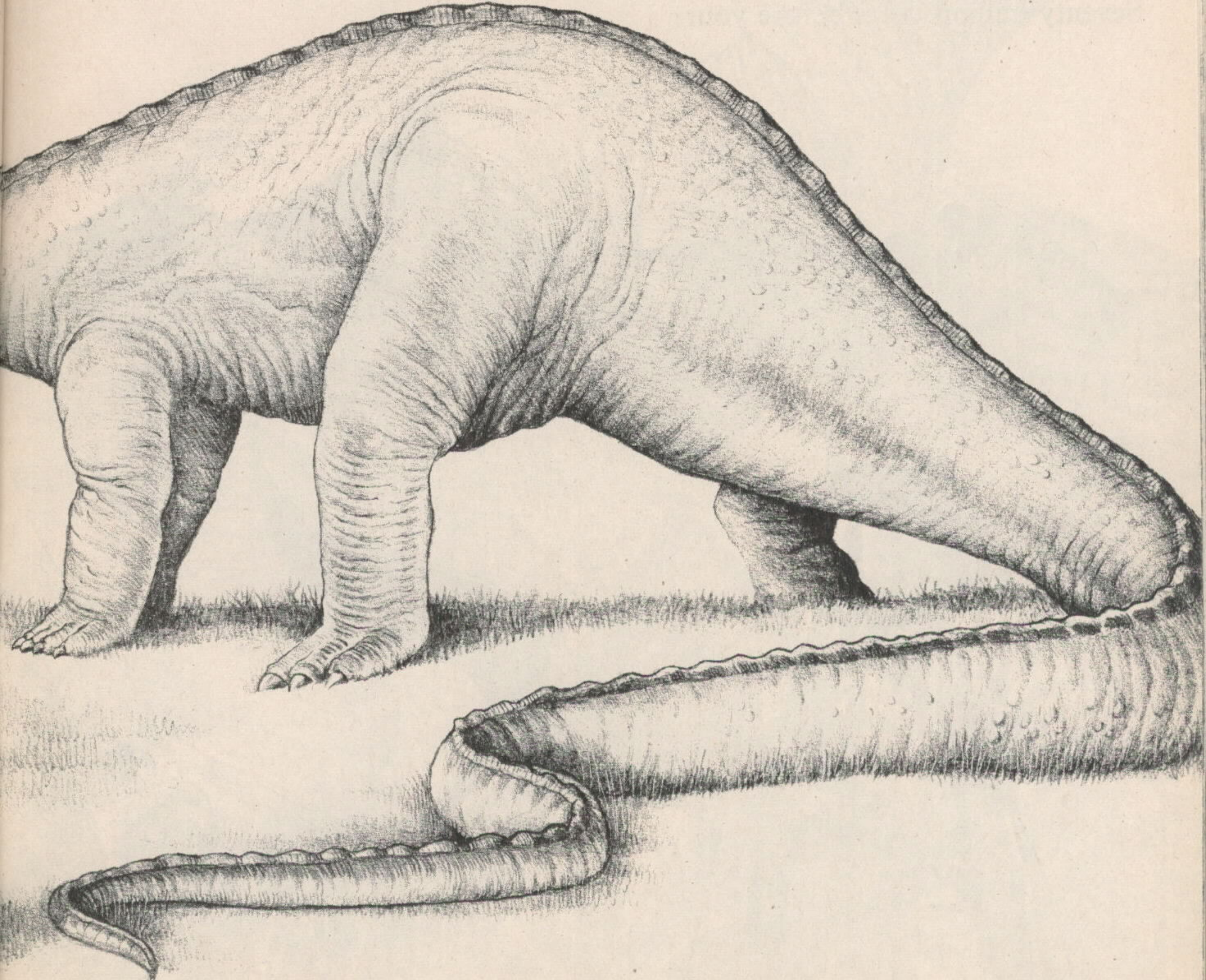


DIPLODOCUS

Now here's one for the Dinosaur Book of Records. A strong contender for the title of longest Dinosaur is the Diplodocus. He lived on Earth about one hundred and fifty million years ago. As you can see, he took up quite a lot of the Earth – about twenty-seven metres of it from head to tail!

He's related to our giant friend the Apatosaurus, but he hasn't got nearly such a weight problem. Diplodocus is much longer and thinner – what you might call one of the new slim-line Dinosaurs.



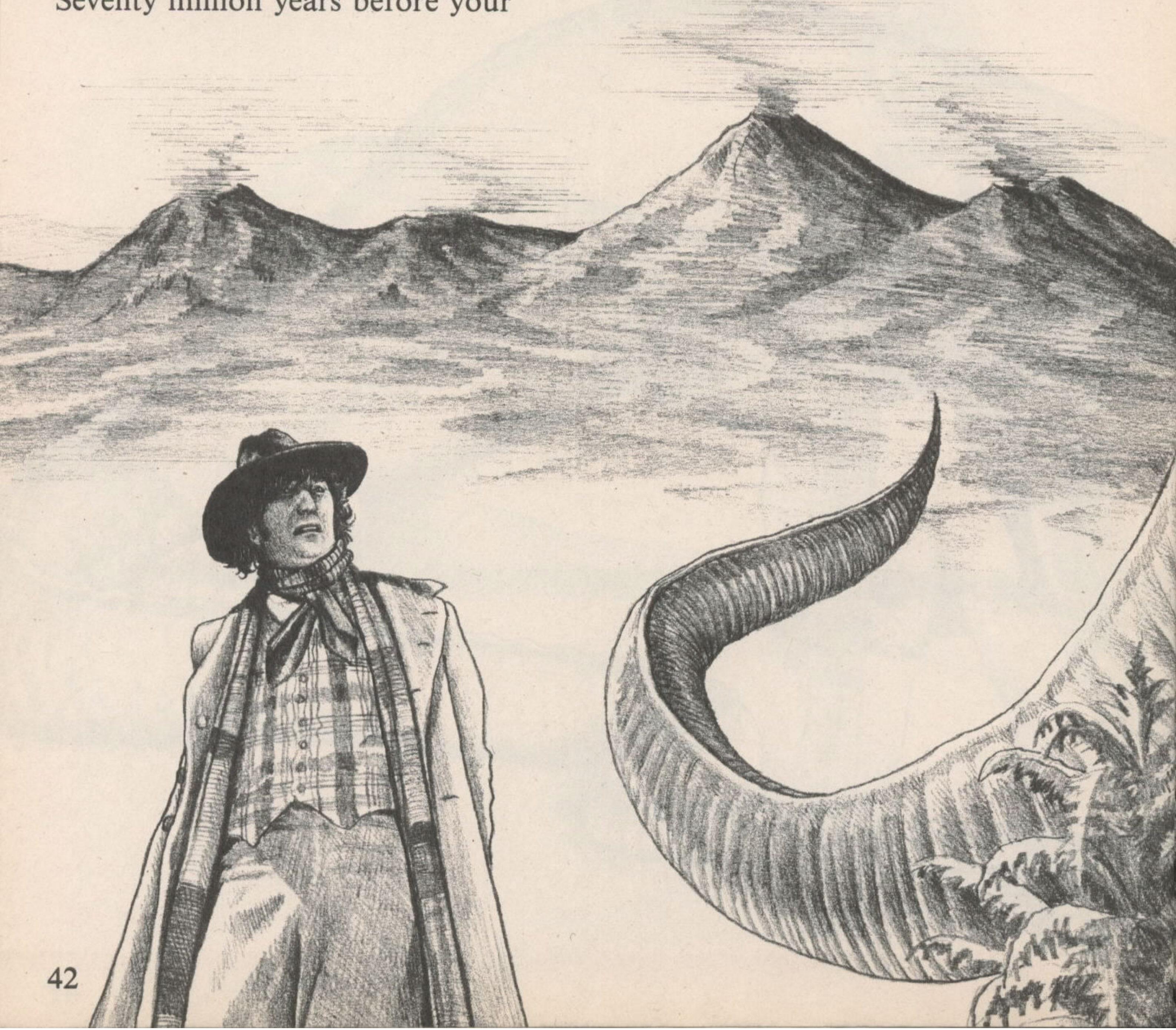


TYRANNOS

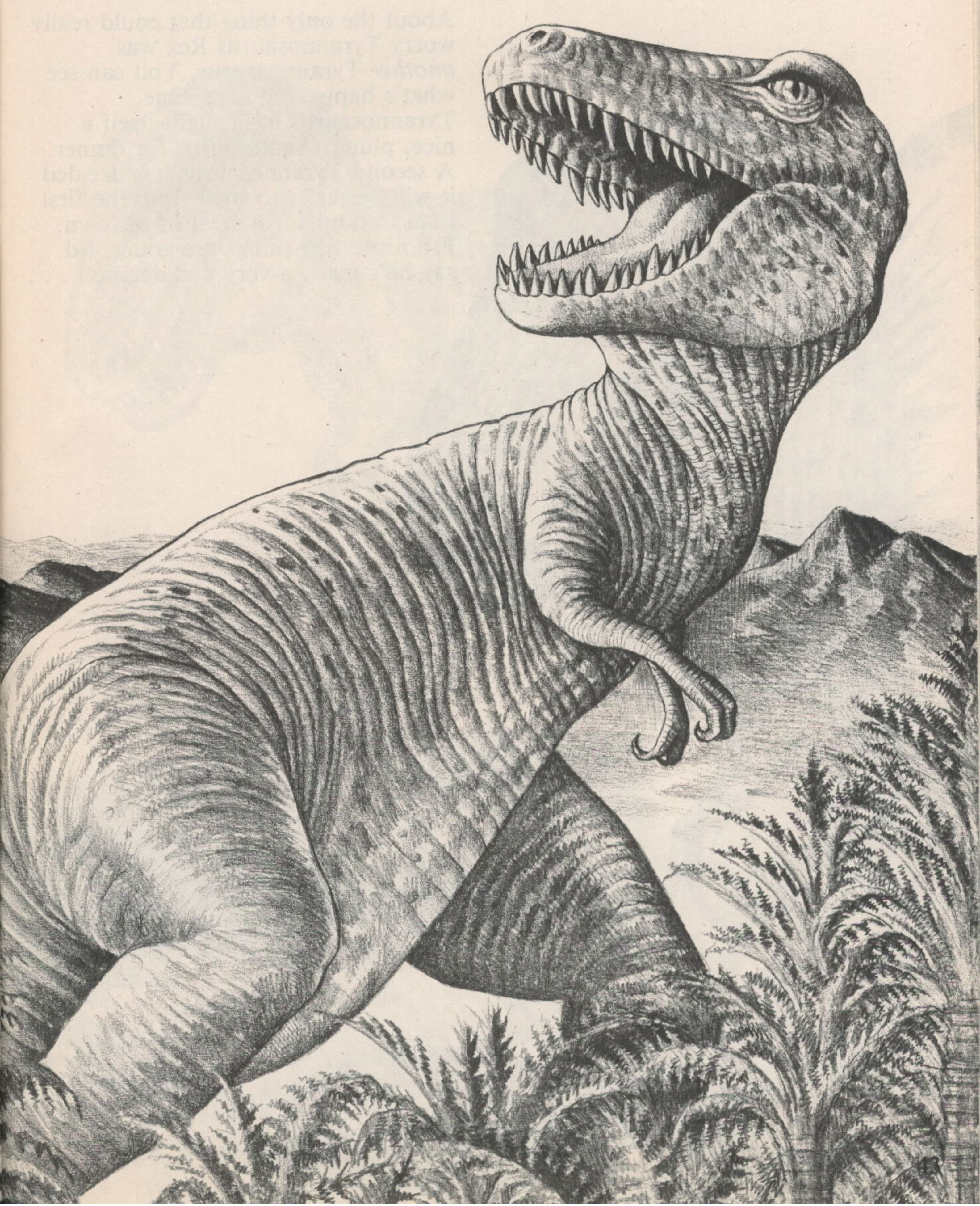
At last we've reached the star of the show, the fiercest, most terrifying flesh-eater that ever stalked the Earth. Tyrannosaurus Rex. His name means King Tyrant Lizard. Judge for yourself how well it suits him.

He walks upright on his two back legs, and stands a good six metres high. He weighs nearly eight tons, and he's about fifteen metres long. He's got huge sharp claws on his feet, and a mouth full of jagged, serrated teeth. Seventy million years before your time, he ruled the world without a single rival.

He preyed on the defenceless flesh-eaters, like the Anatosaurus, for choice, though sometimes hunger must have driven him to take a chance with the well-armoured Ankylosaurus, or one of the other armoured or horned Dinosaurs. Even one of these well-protected creatures might fall victim to the world's most powerful killer.

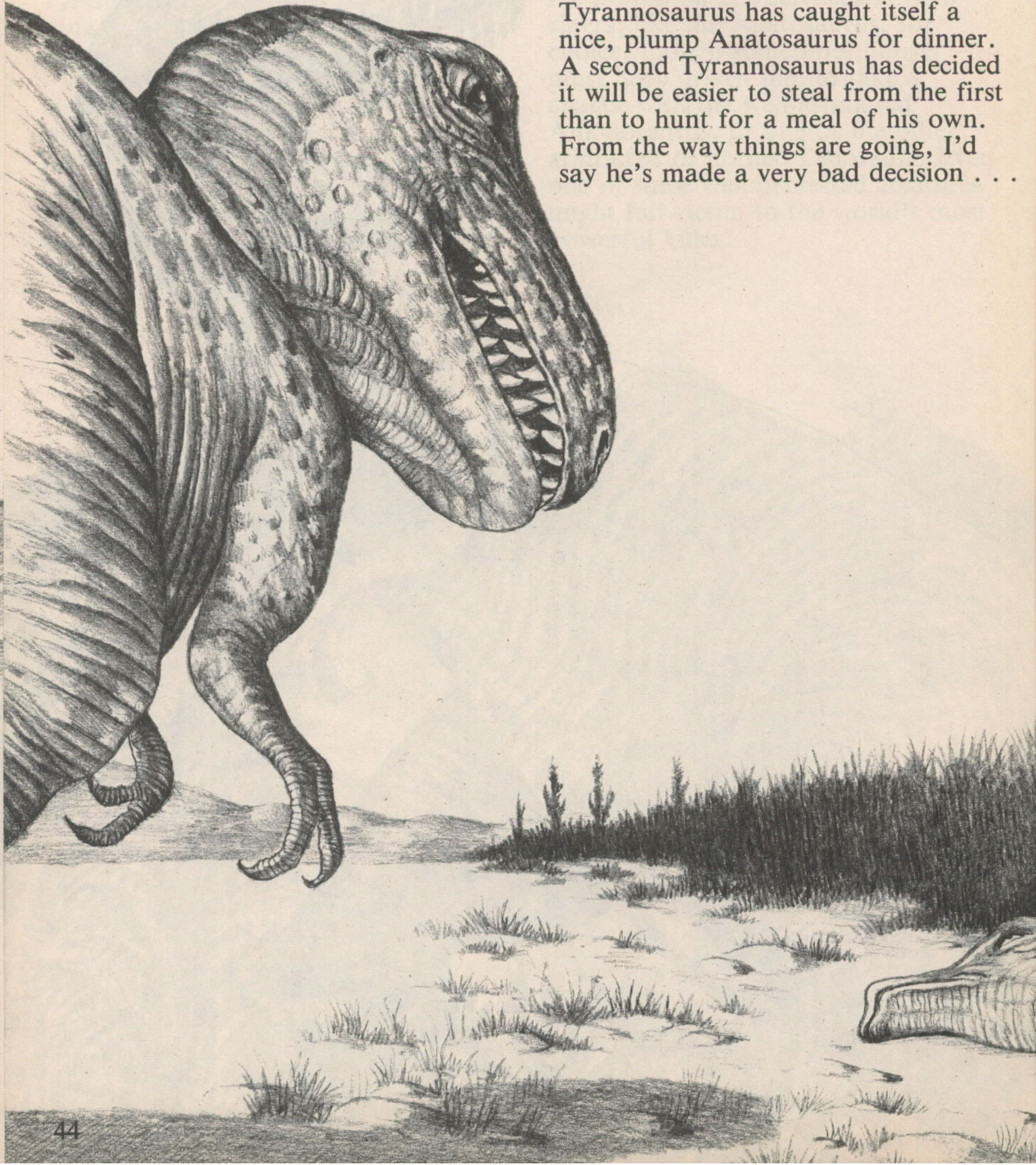


AURUS REX

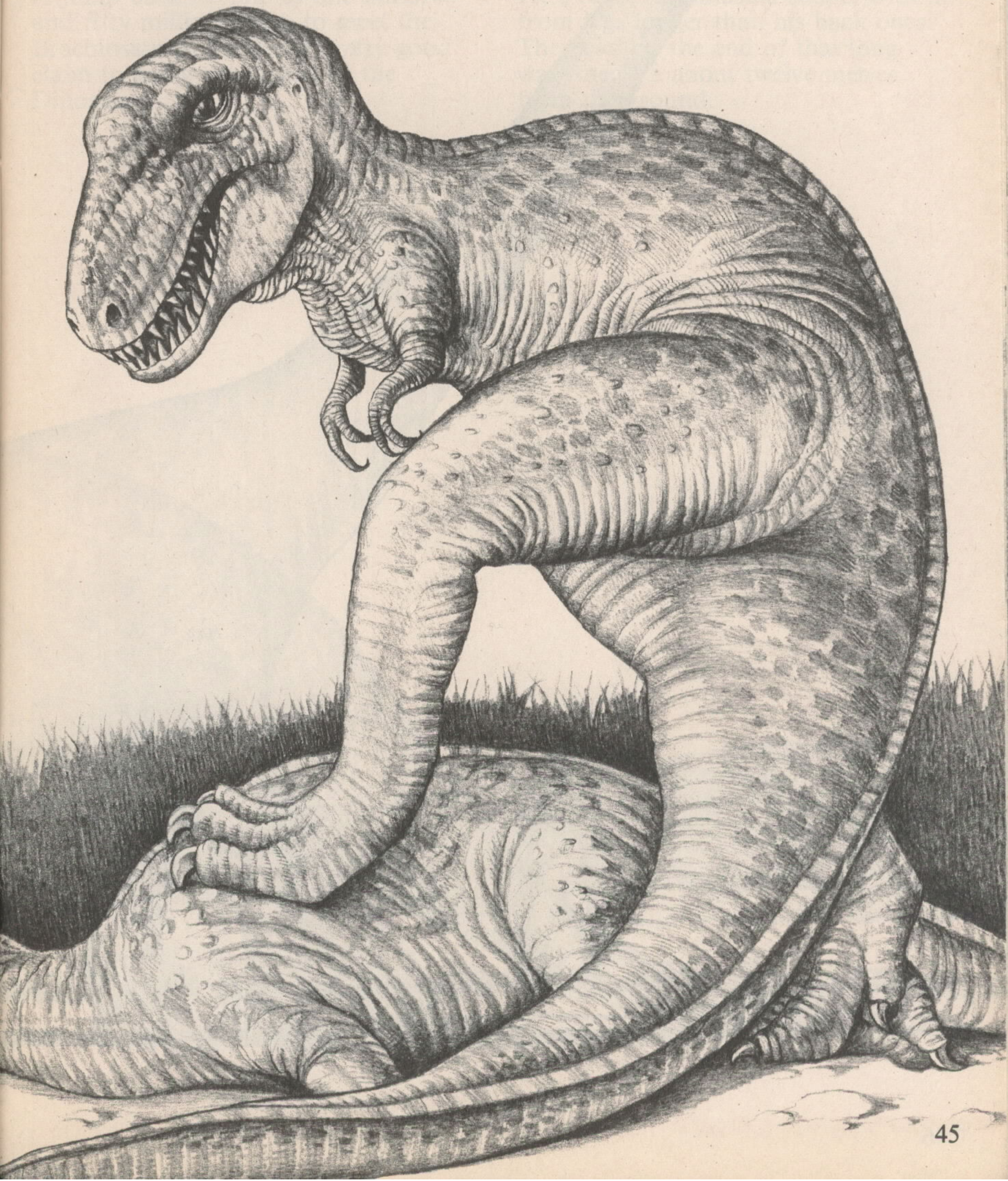


FIGHTING TYR

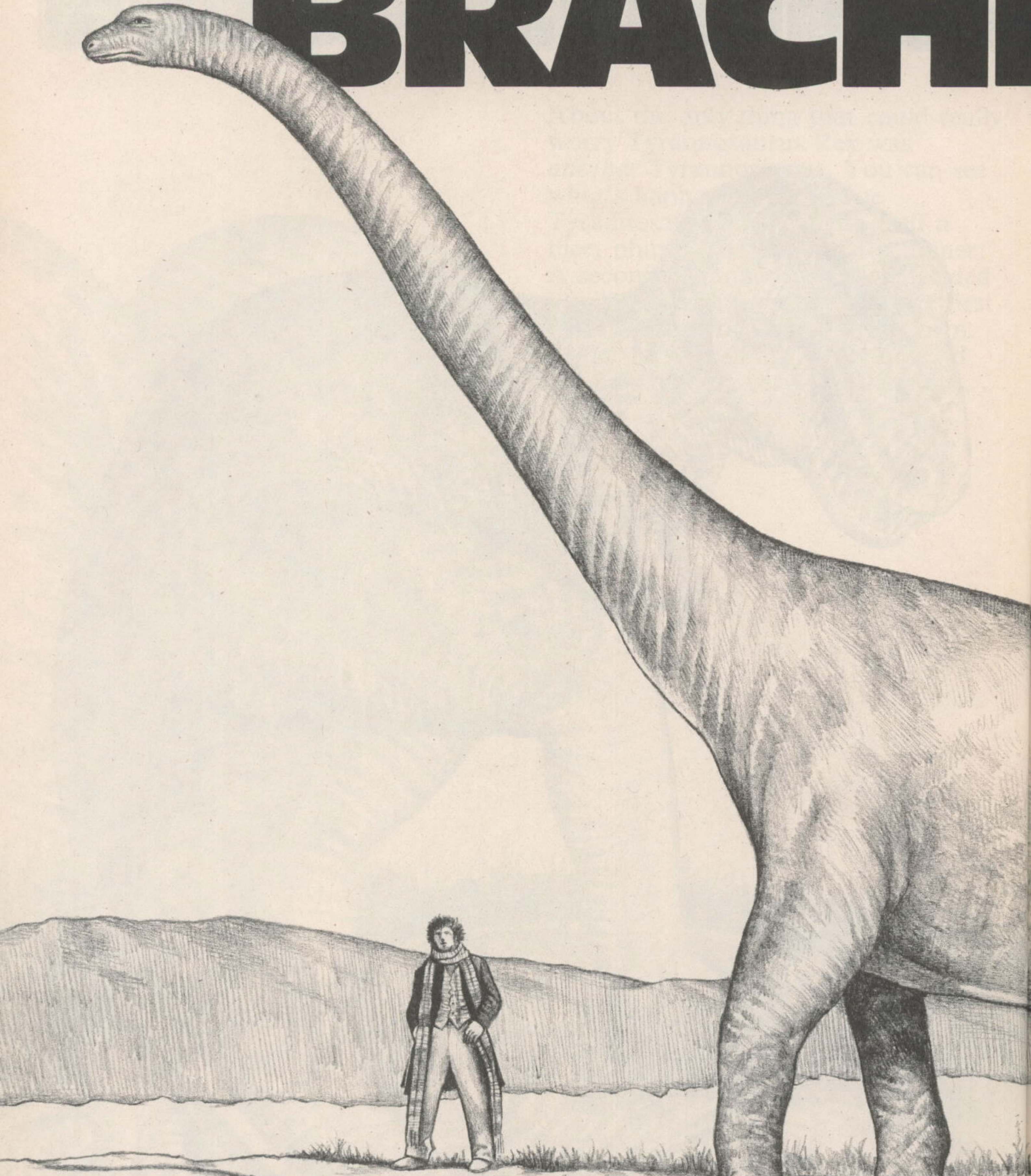
About the only thing that could really worry Tyrannosaurus Rex was *another* Tyrannosaurus. You can see what's happening here. One Tyrannosaurus has caught itself a nice, plump Anatosaurus for dinner. A second Tyrannosaurus has decided it will be easier to steal from the first than to hunt for a meal of his own. From the way things are going, I'd say he's made a very bad decision . . .



RANNOSAURS



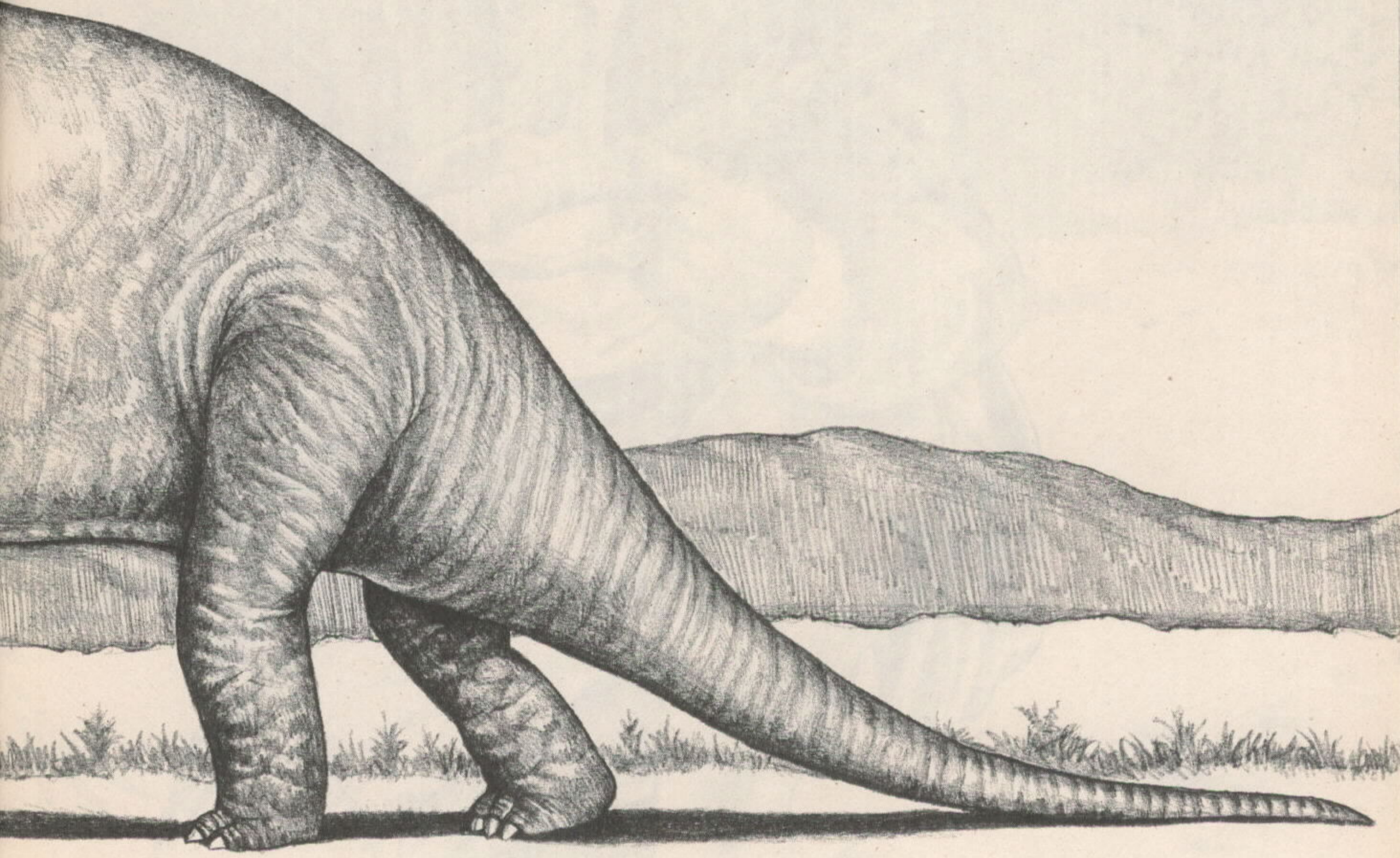
BRACH



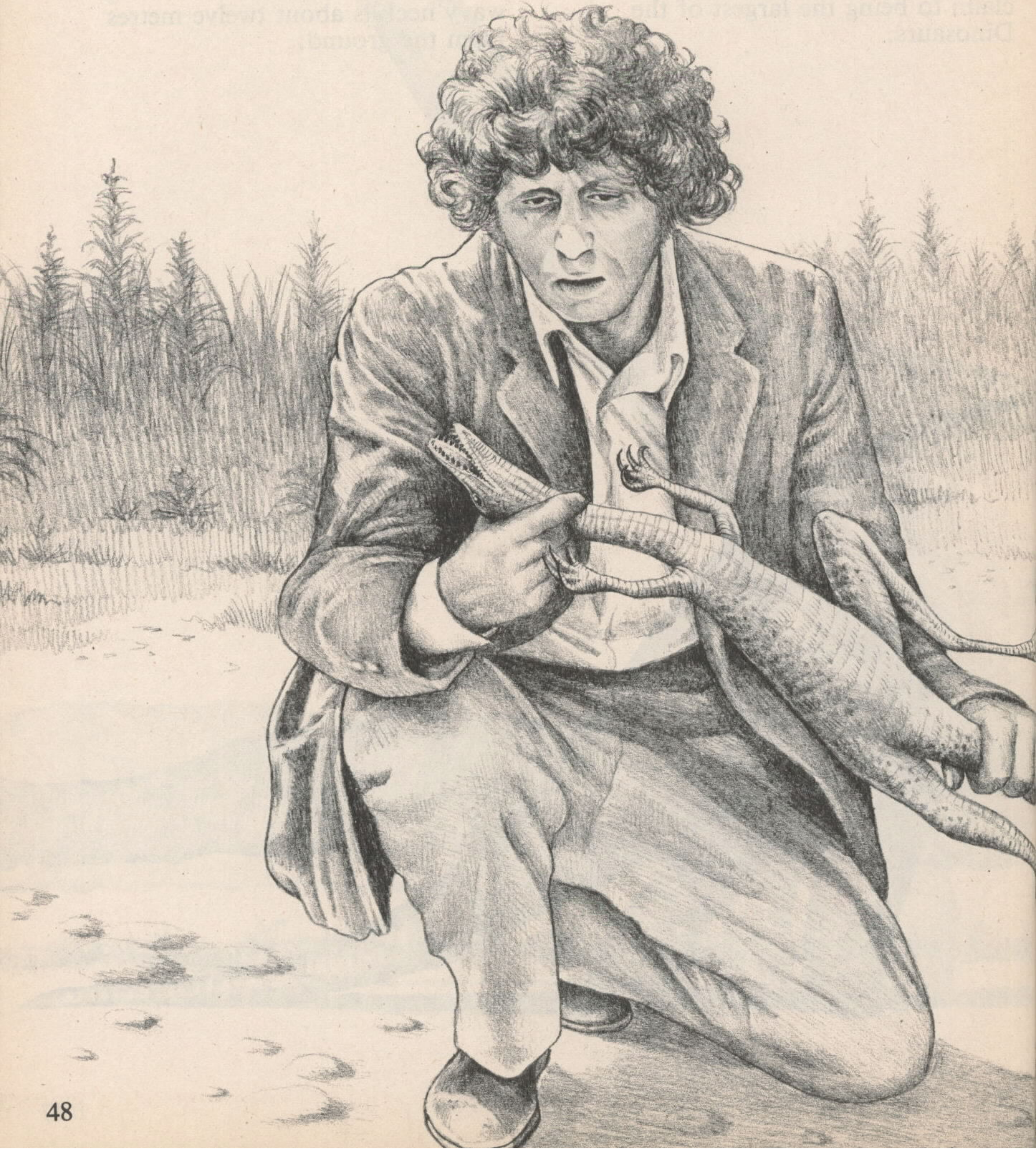
OSAURUS

A jump back in time of one hundred and fifty million years, to meet the Brachiosaurus. He has a pretty good claim to being the largest of the Dinosaurs.

He's rather an unusual shape, with his front legs longer than his back ones. The head on the end of that long wavy neck is about twelve metres from the ground.



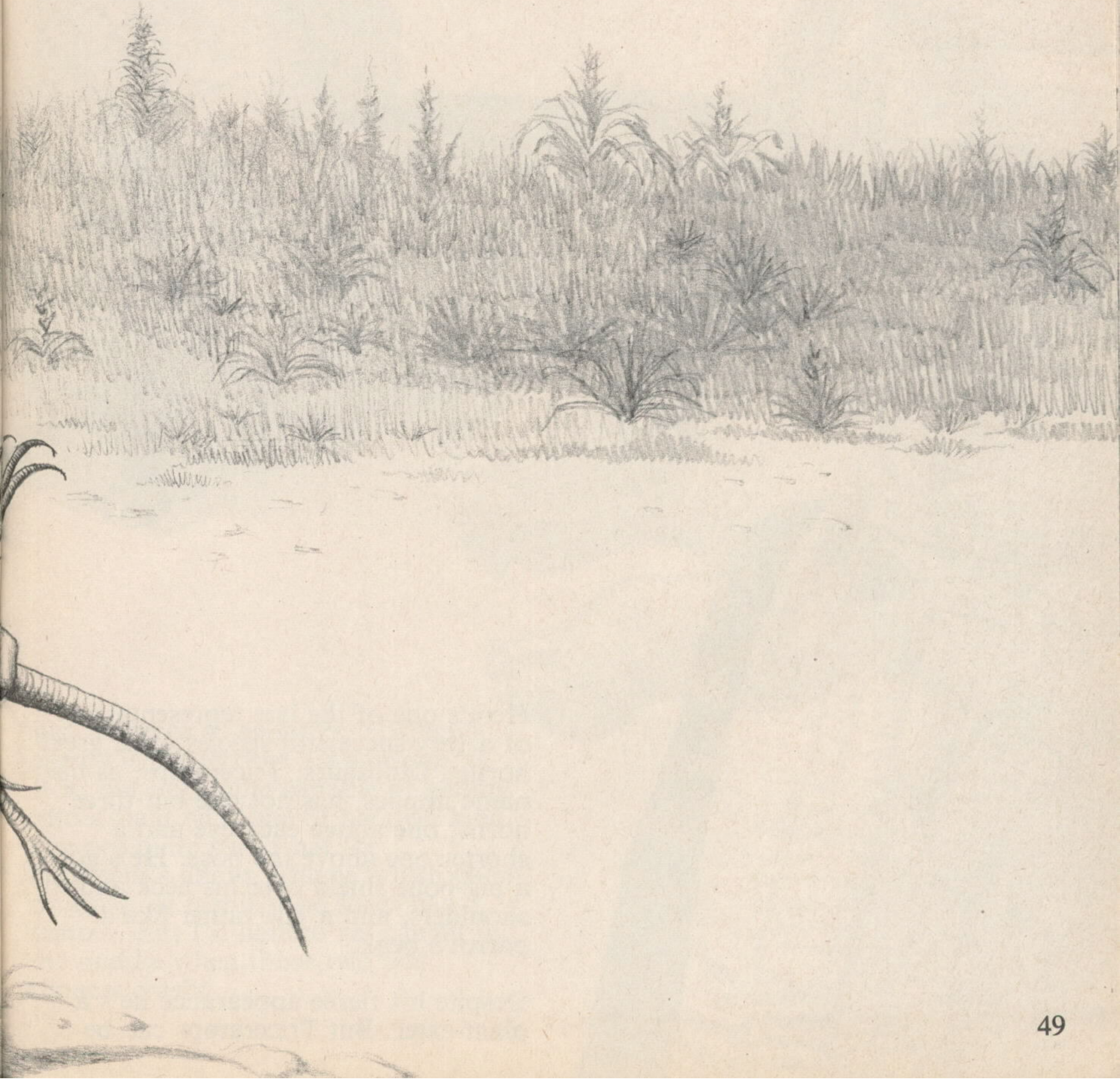
COMPSO



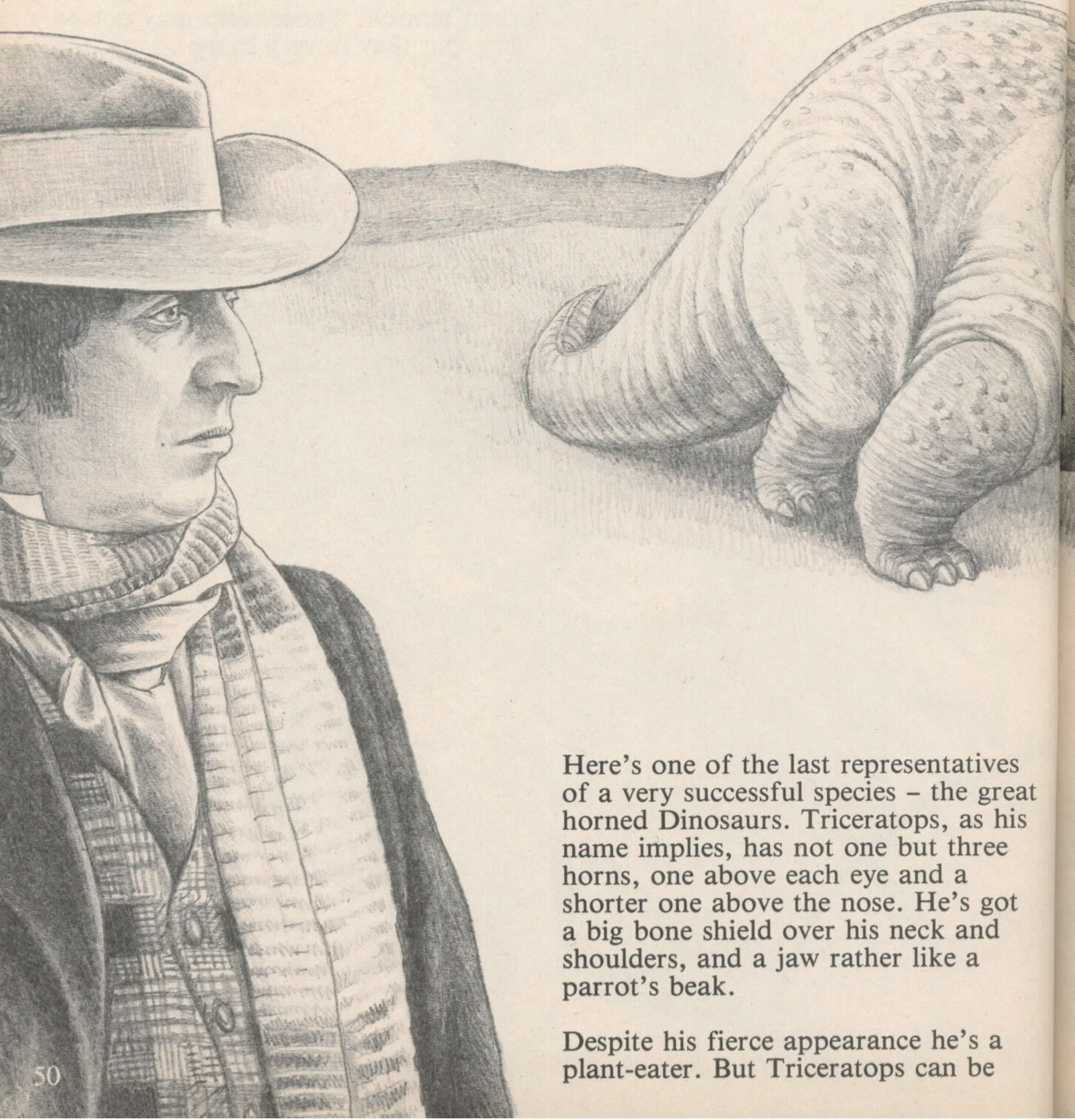
GNATHUS

After the biggest Dinosaur, the smallest! Compsognathus – a midget Dinosaur in a world of terrifying giants. He's hardly as big as a chicken, and he'd make no more than one quick mouthful for a hunting Allosaurus.

Perhaps he relies upon his small size to protect him, scurrying along the ground where the large fellows can't see him. Not that he's helpless. In his own way Compsognathus is a hunter too, preying on creatures even smaller than himself. Those teeth may not be big, but they're very sharp . . .



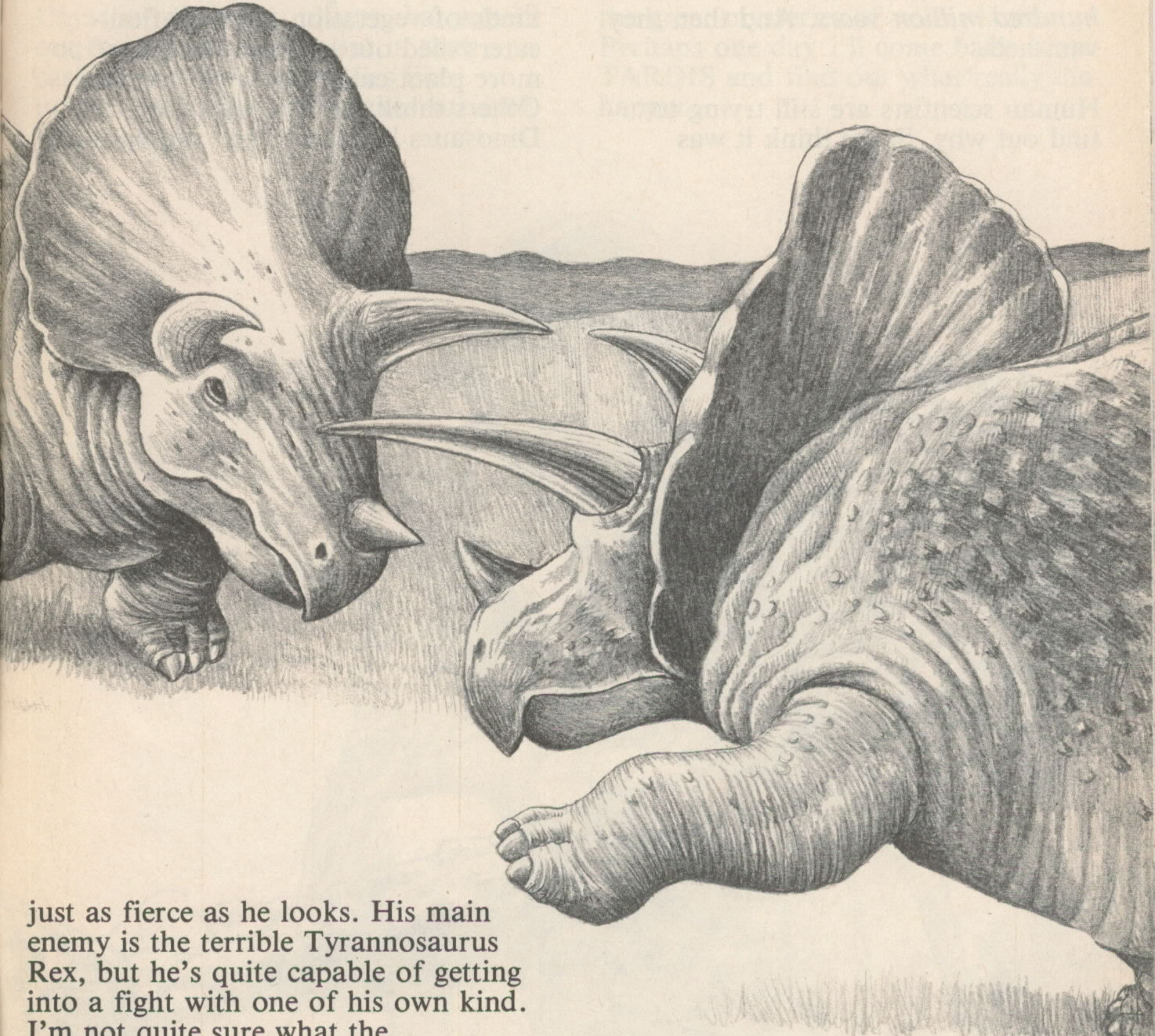
TRICER



Here's one of the last representatives of a very successful species – the great horned Dinosaurs. Triceratops, as his name implies, has not one but three horns, one above each eye and a shorter one above the nose. He's got a big bone shield over his neck and shoulders, and a jaw rather like a parrot's beak.

Despite his fierce appearance he's a plant-eater. But Triceratops can be

RATOPS

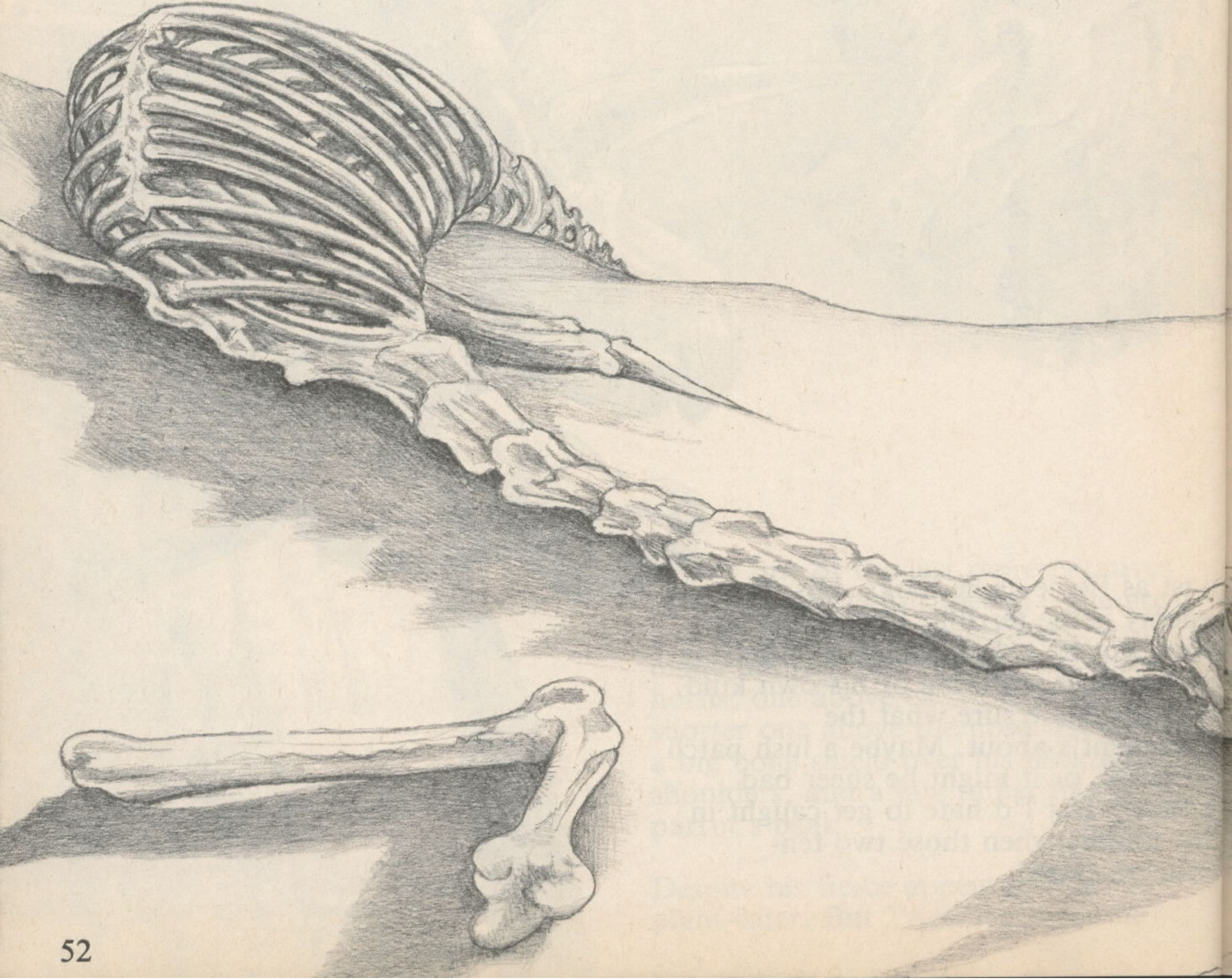


just as fierce as he looks. His main enemy is the terrible Tyrannosaurus Rex, but he's quite capable of getting into a fight with one of his own kind. I'm not quite sure what the argument's about. Maybe a lush patch of grass, or it might be sheer bad temper. But I'd hate to get caught in the middle when those two ten-tonners crash!

THE END OF T

We've had a look at quite a few of the amazing variety of Dinosaurs. Now one big mystery remains – where did they go? They ruled the Earth, in one form or another, for well over a *hundred million years.* And then they vanished.

Human scientists are still trying to find out why. Some think it was because the weather changed, bringing colder temperatures that the cold-blooded Dinosaurs couldn't cope with. Some think the plant-eaters died out because they couldn't eat new kinds of vegetation, and the flesh-eaters died out because there were no more plant-eaters for *them* to eat! Others think that the way the Dinosaurs laid their eggs and casually

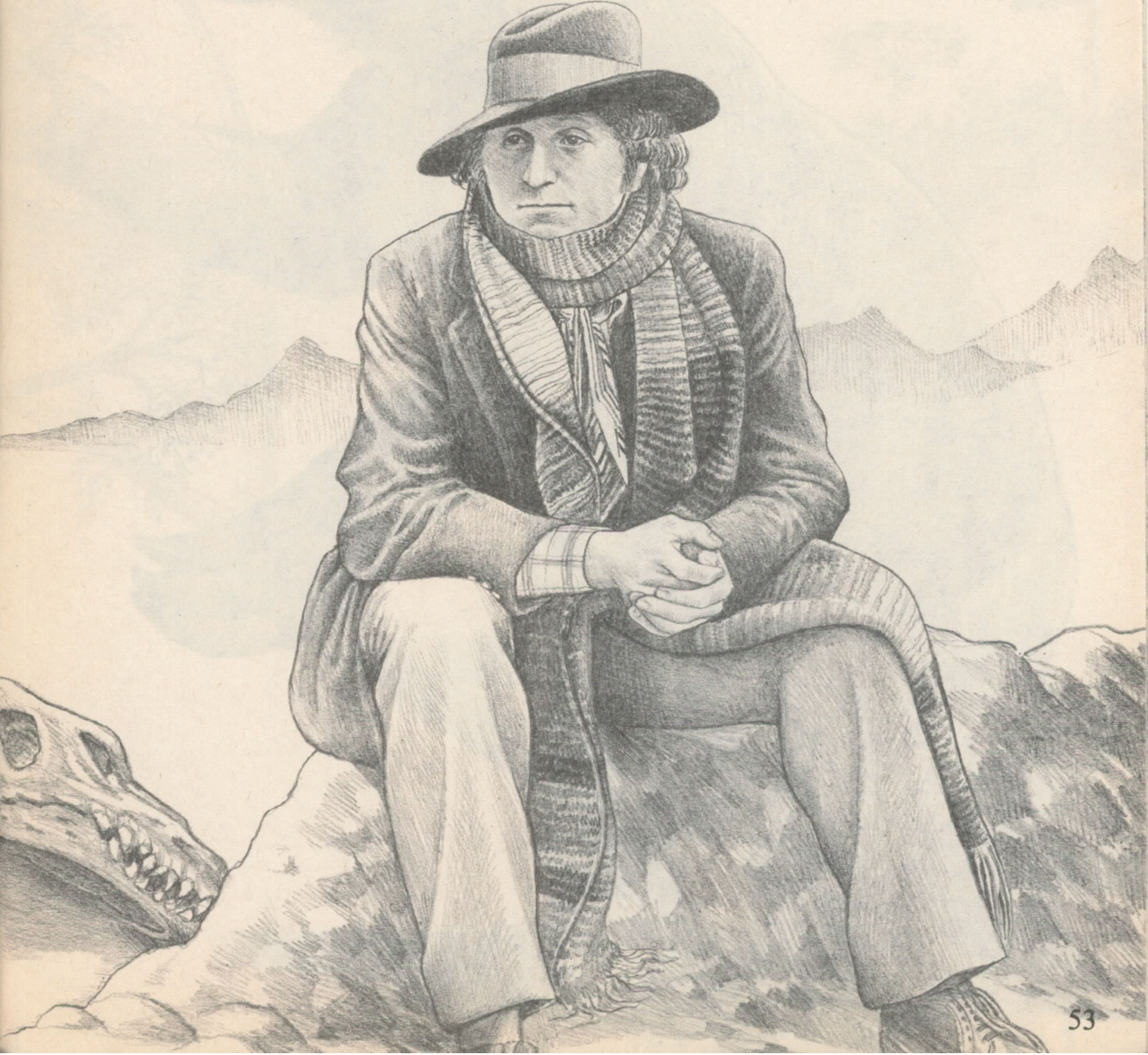


IE DINOSAURS

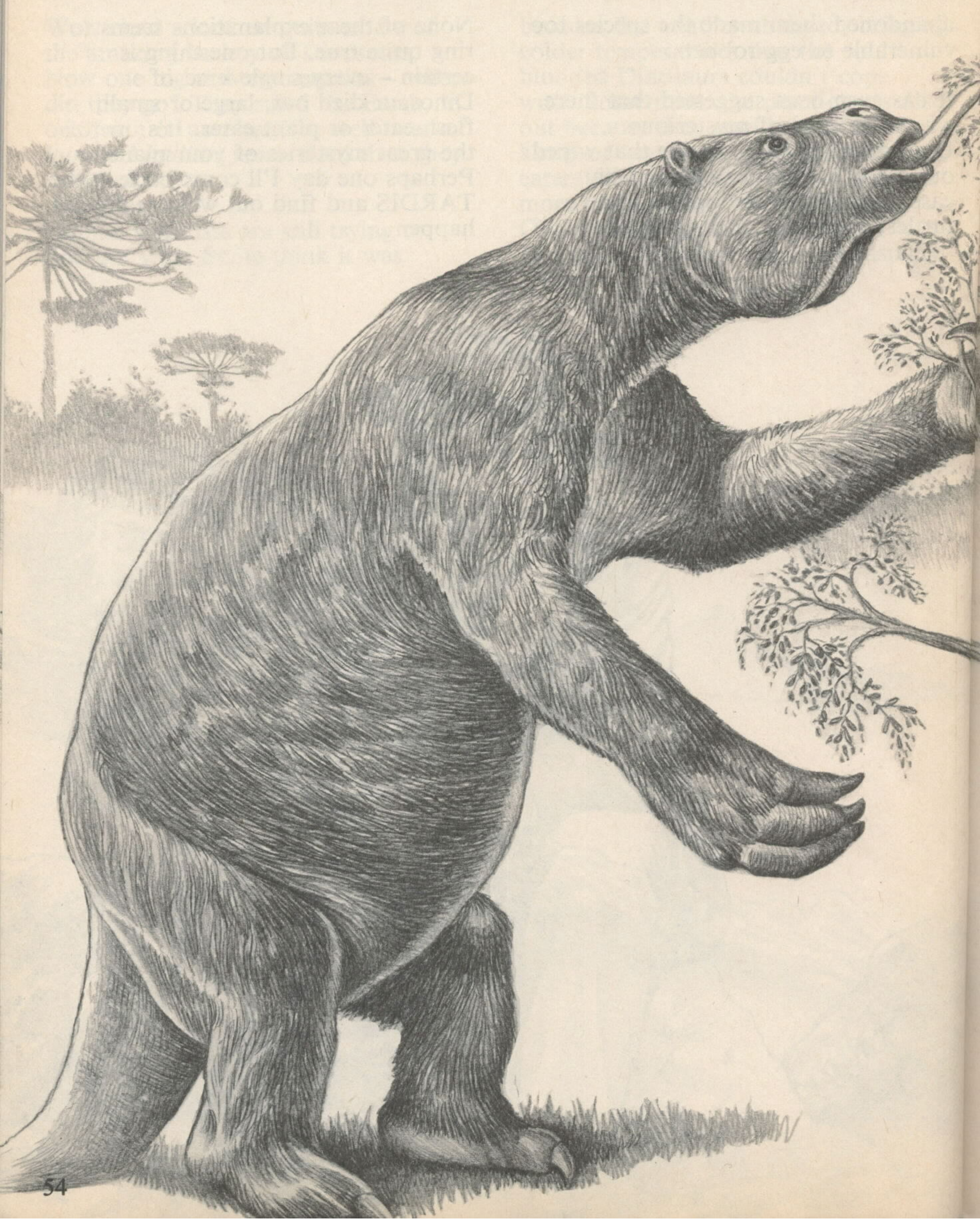
abandoned them made the species too vulnerable to egg-robbers.

It has even been suggested that there was some kind of mysterious Dinosaur disease, a plague that wiped out the entire species. But in that case, how did other reptiles like turtles, crocodiles and snakes survive?

None of these explanations seems to ring quite true. But one thing is certain – every single kind of Dinosaur died out, large or small, flesh-eater or plant-eater. It's one of the great mysteries of your planet. Perhaps one day I'll come back in the TARDIS and find out what really did happen . . .



MEGATHERIUM

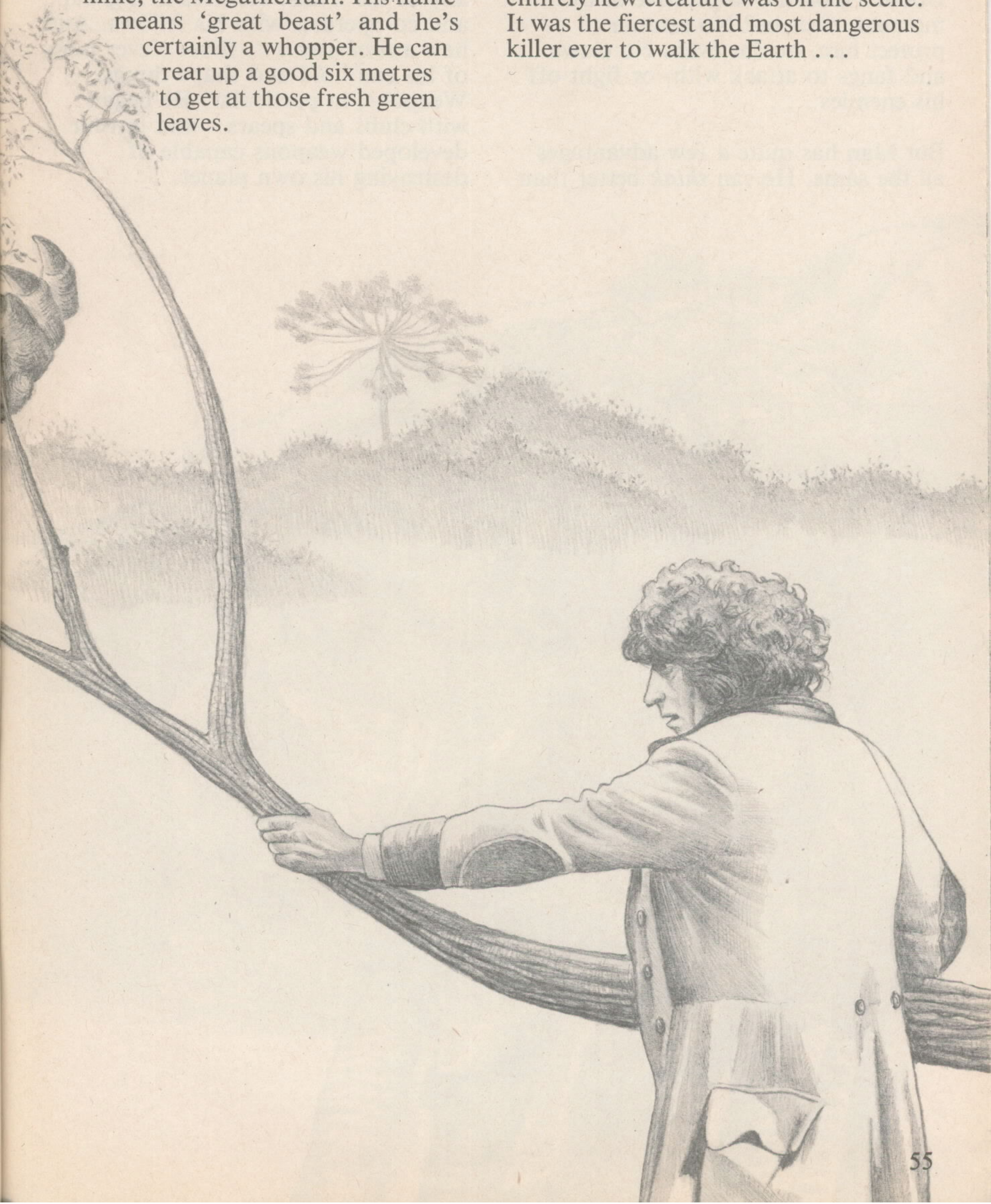


The age of the Dinosaurs is over and we've made a big time-jump forwards. But there are still quite a few interesting creatures around.

This one's a particular favourite of mine, the Megatherium. His name means 'great beast' and he's certainly a whopper. He can rear up a good six metres to get at those fresh green leaves.

Really he's a giant ground sloth, an ancestor of the sloths of your own day.

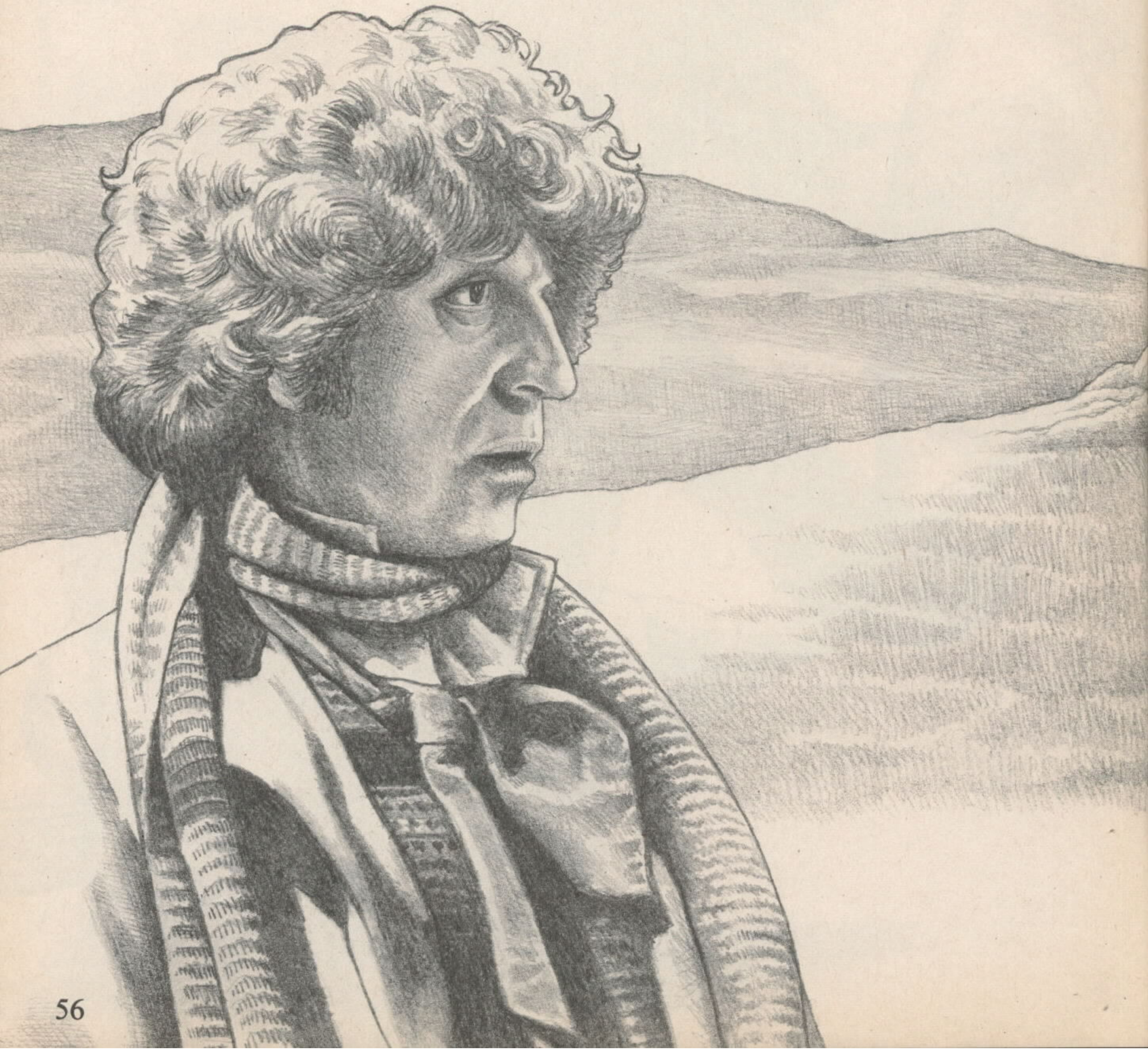
Now it's time to move on again. Around half a million years ago an entirely new creature was on the scene. It was the fiercest and most dangerous killer ever to walk the Earth . . .



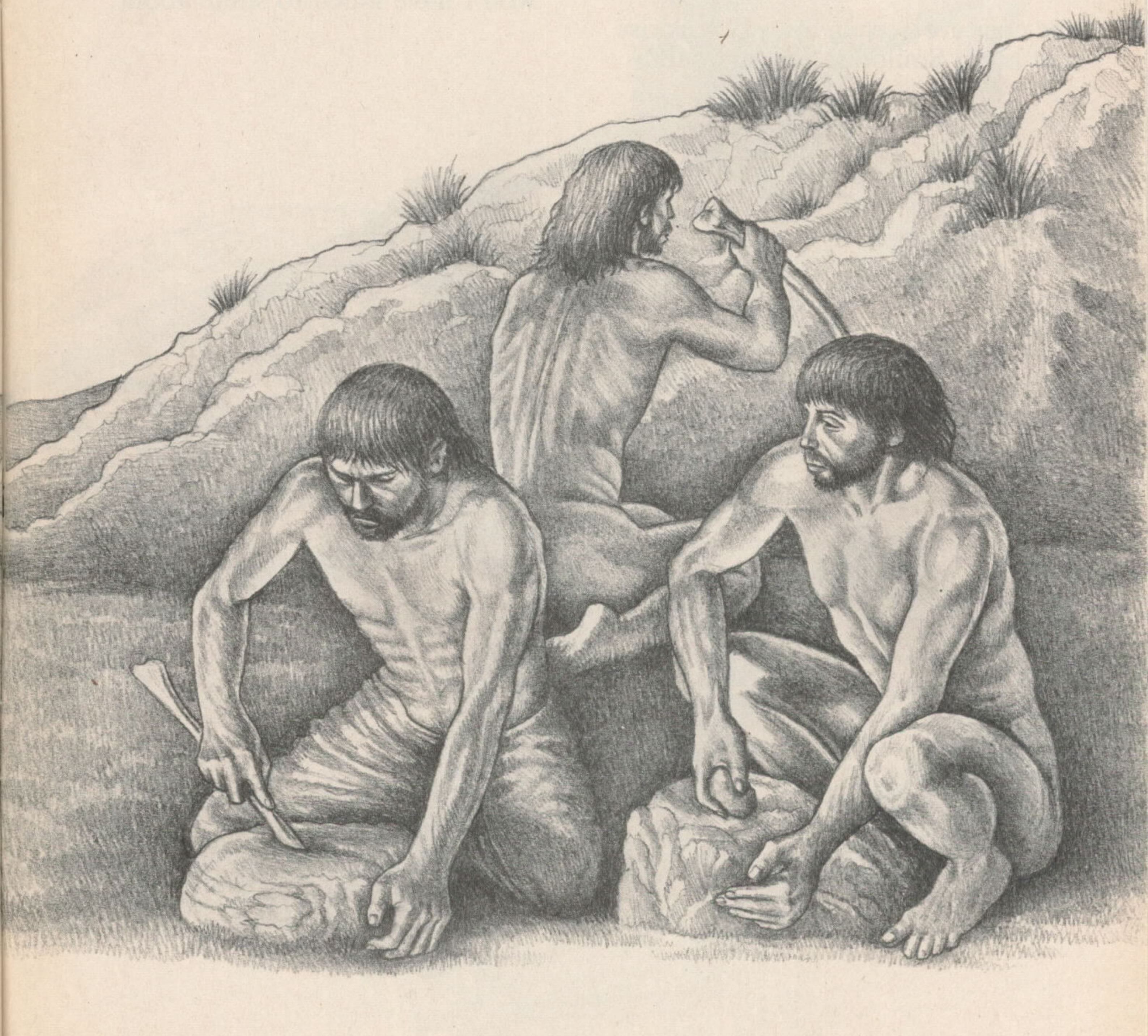
AN ANIMAL

Doesn't look too impressive at the moment, does he? No armour to protect him, no fur even. No claws and fangs to attack with, or fight off his enemies . . .

But Man has quite a few advantages all the same. He can *think* better than any of his rivals. He lives in a group, and co-operates with his fellows. And he's a *tool* user . . . those clever paws of his can hold and shape things. Weapons, in particular. He began with clubs and spears – and in time developed weapons capable of destroying his own planet.



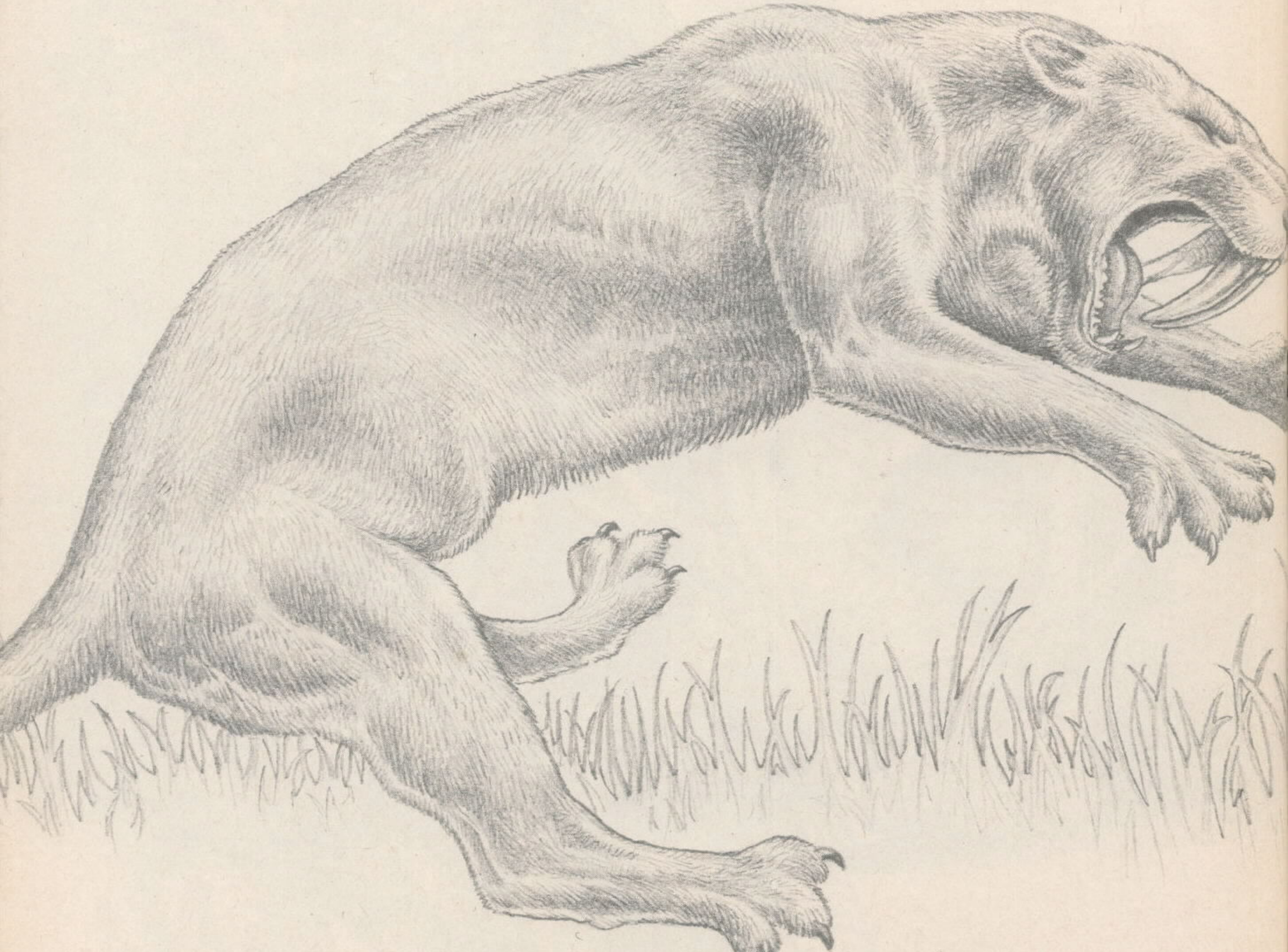
CALLED MAN

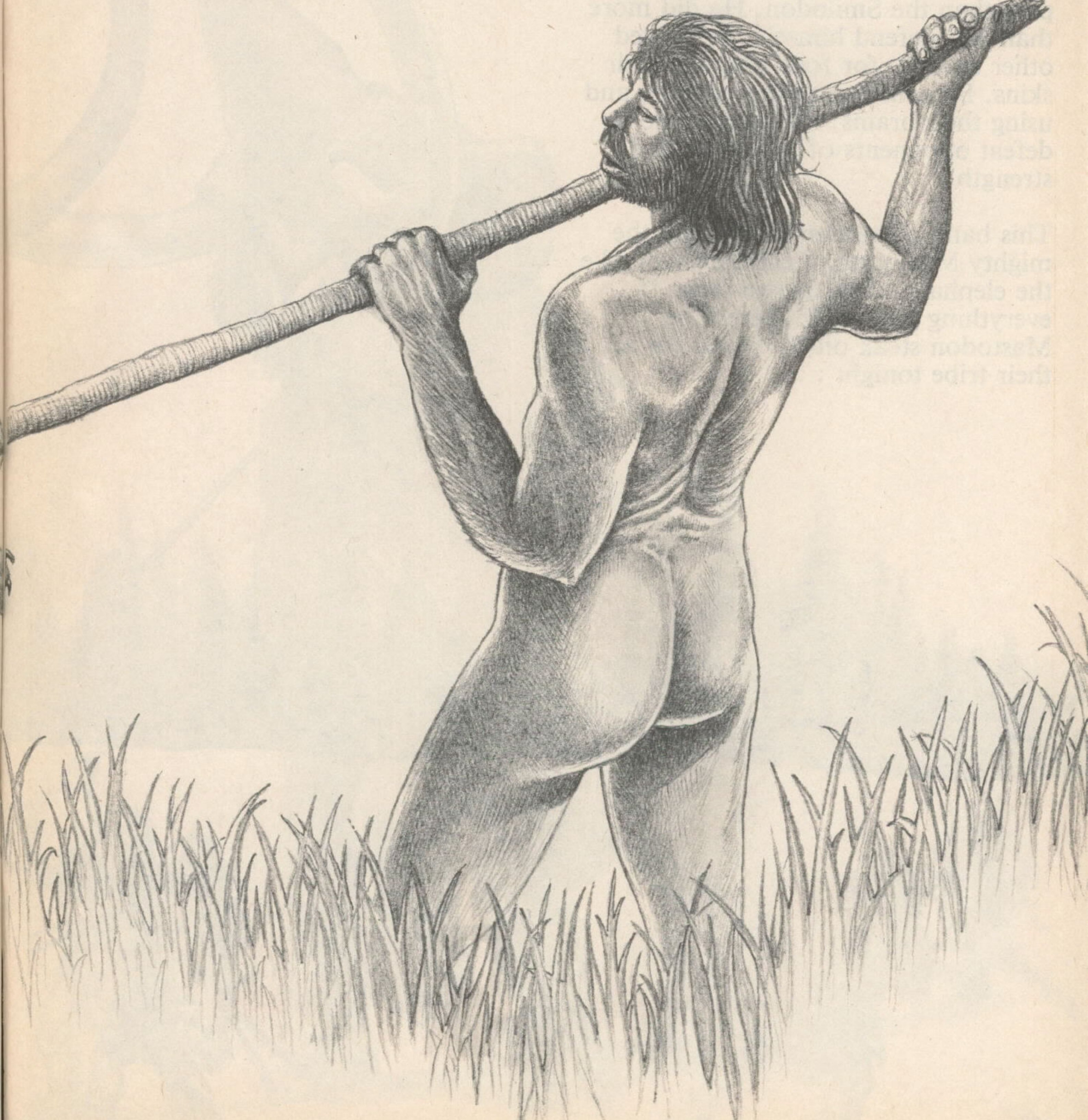


SMILODON

Man must have seemed an easy victim to those predators who roamed the world in his time. But he wasn't as defenceless as he looked. Although he wasn't born with built-in weapons, he learned to *make* them, and to use them well.

The creature getting a nasty surprise here is the Smilodon, a giant sabre-toothed cat. His name means 'knife tooth' and you can see how he got it. Sometimes he's called the sabre-toothed tiger, but tigers are a different branch of the cat family. Anyway, by the time your primitive ancestor has finished with him, the Smilodon won't have much to smile about!

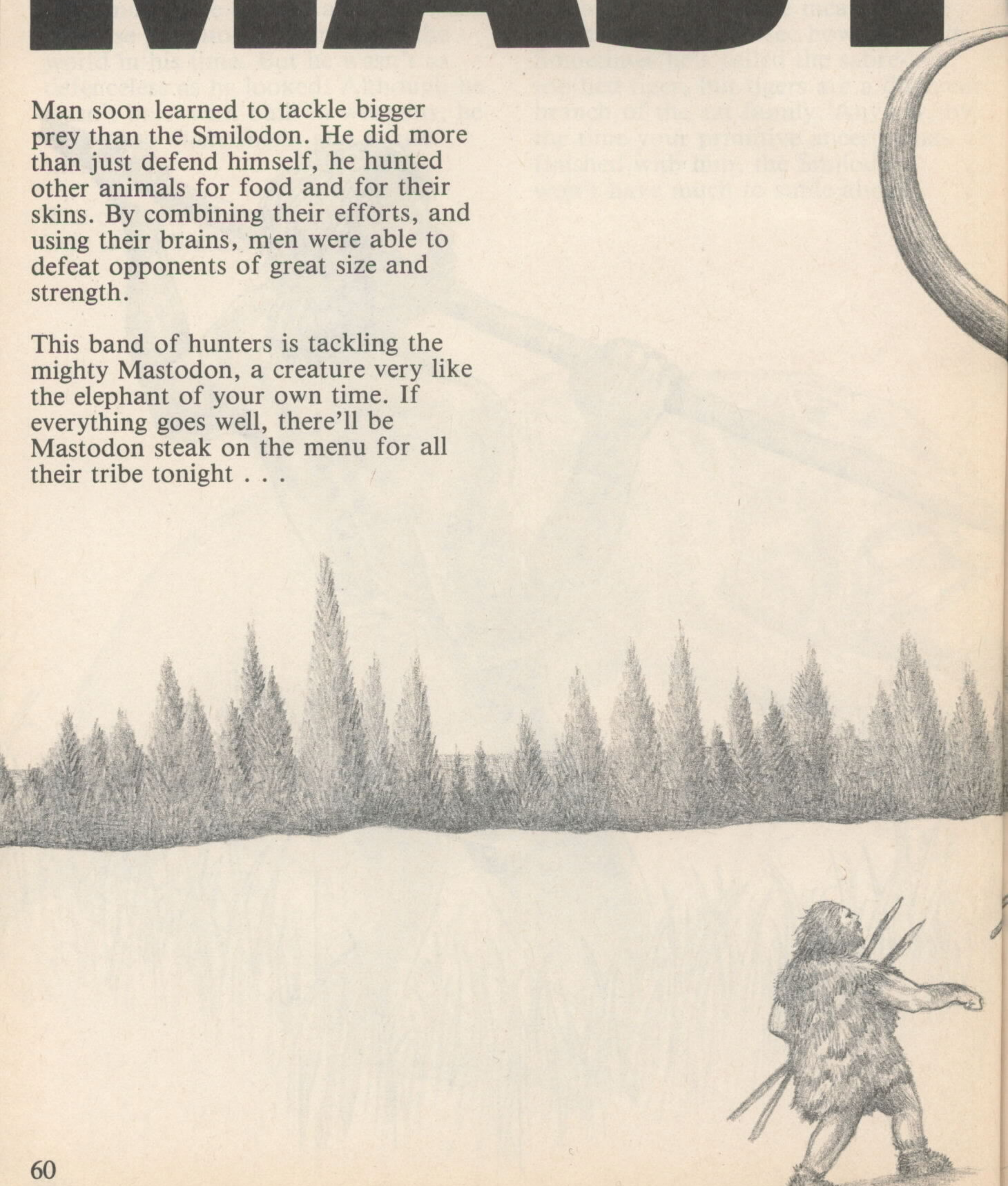




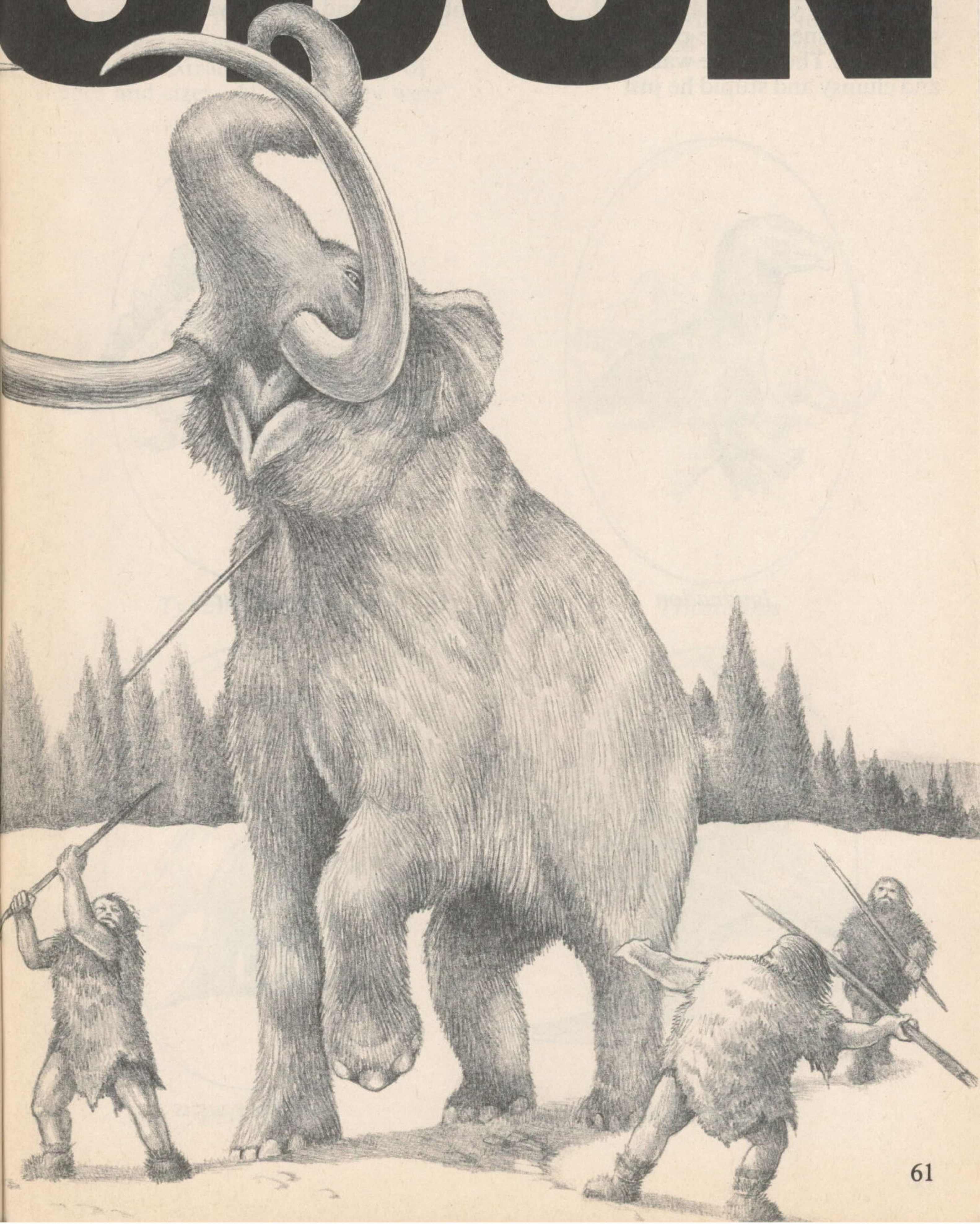
MAST

Man soon learned to tackle bigger prey than the Smilodon. He did more than just defend himself, he hunted other animals for food and for their skins. By combining their efforts, and using their brains, men were able to defeat opponents of great size and strength.

This band of hunters is tackling the mighty Mastodon, a creature very like the elephant of your own time. If everything goes well, there'll be Mastodon steak on the menu for all their tribe tonight . . .

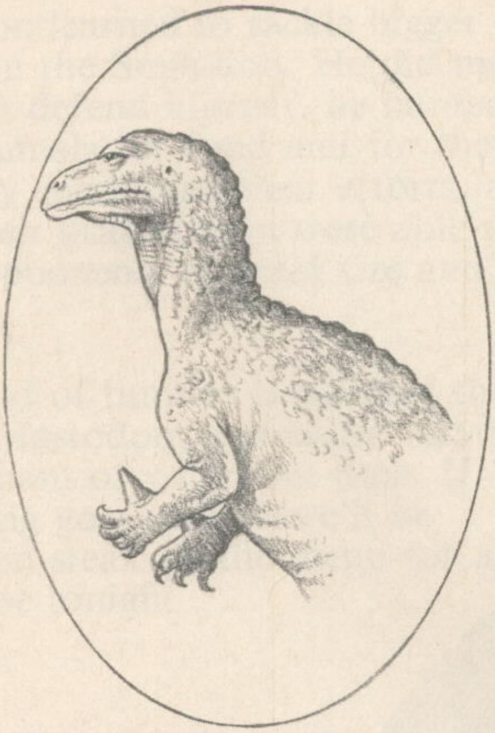


ODON

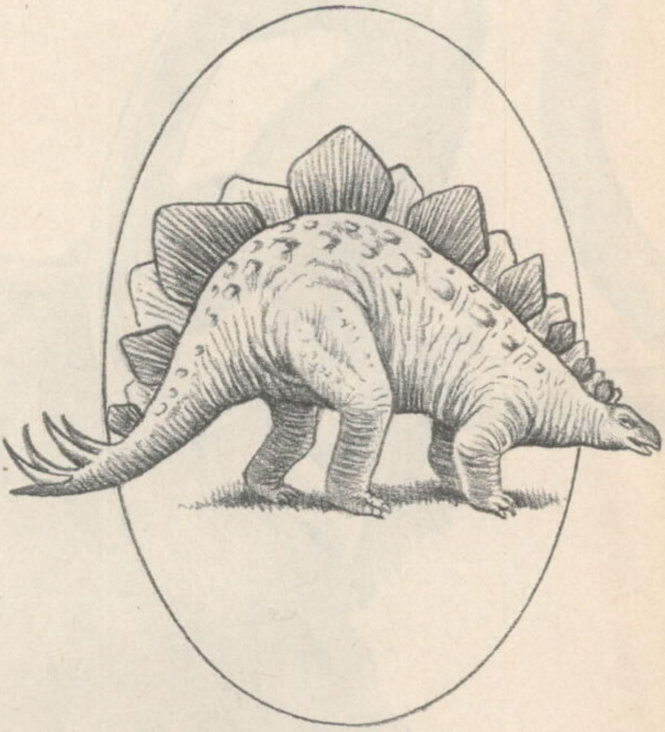


DON'T LOOK DOWN

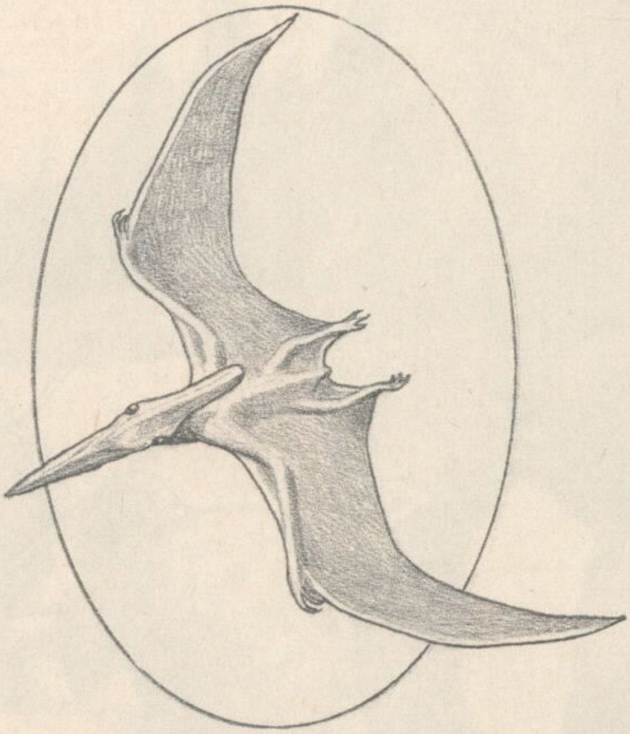
There's a tendency amongst certain members of your newly-arrived species to sneer at the poor old Dinosaur. They say he was so big and clumsy and stupid he just couldn't cope with life, became obsolete, and faded away.



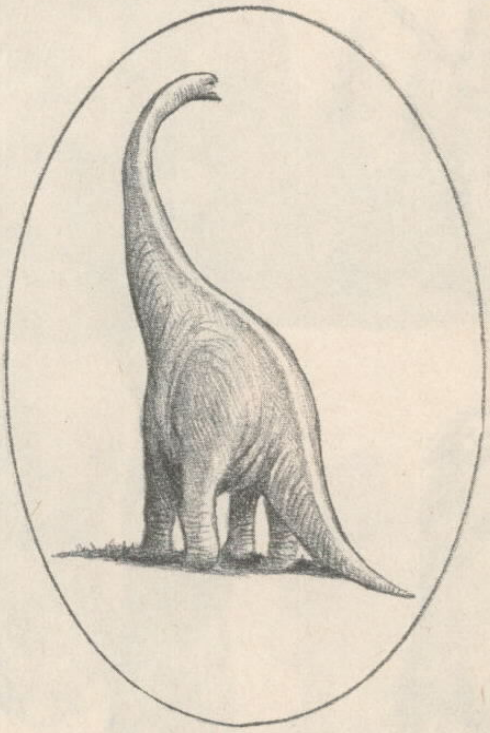
Iguanadon



Stegosaurus



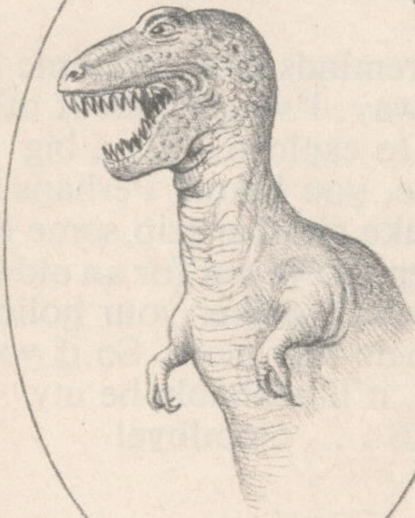
Pteranodon



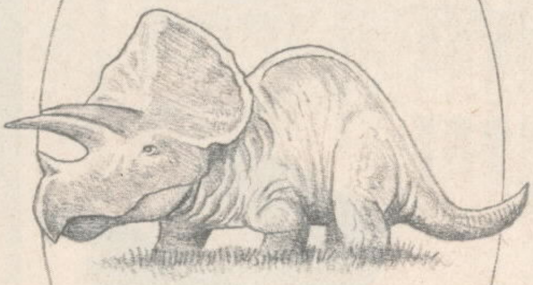
Brachiosaurus

ON THE DINOSAUR!

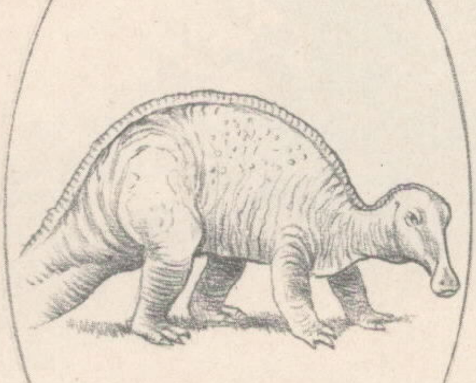
But remember this. The Dinosaurs ruled the Earth for over one hundred million years. They came, as we've seen, in an extraordinary variety of shapes and sizes. All in all they were one of Nature's more successful experiments. Perhaps it's just as well they disappeared before *you* turned up!



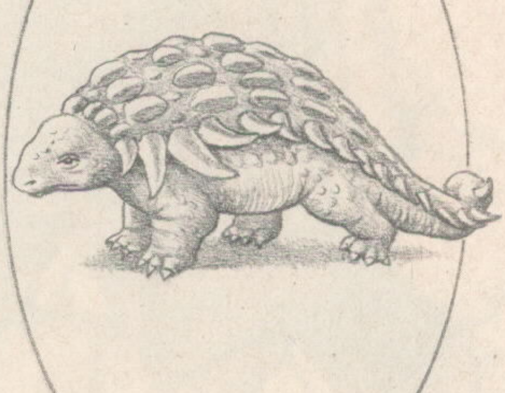
Tyrannosaurus Rex



Triceratops

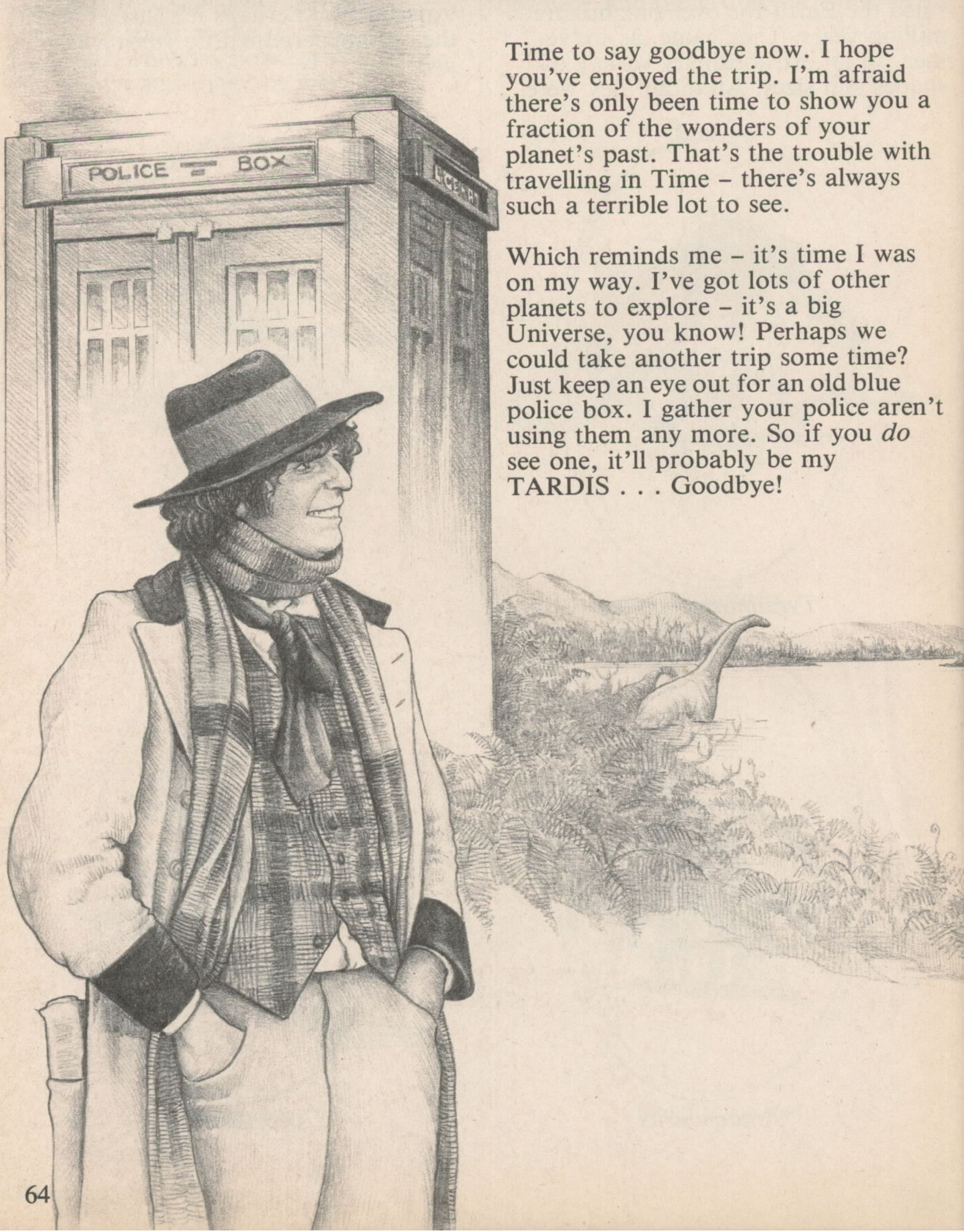


Anatosaurus



Ankylosaurus

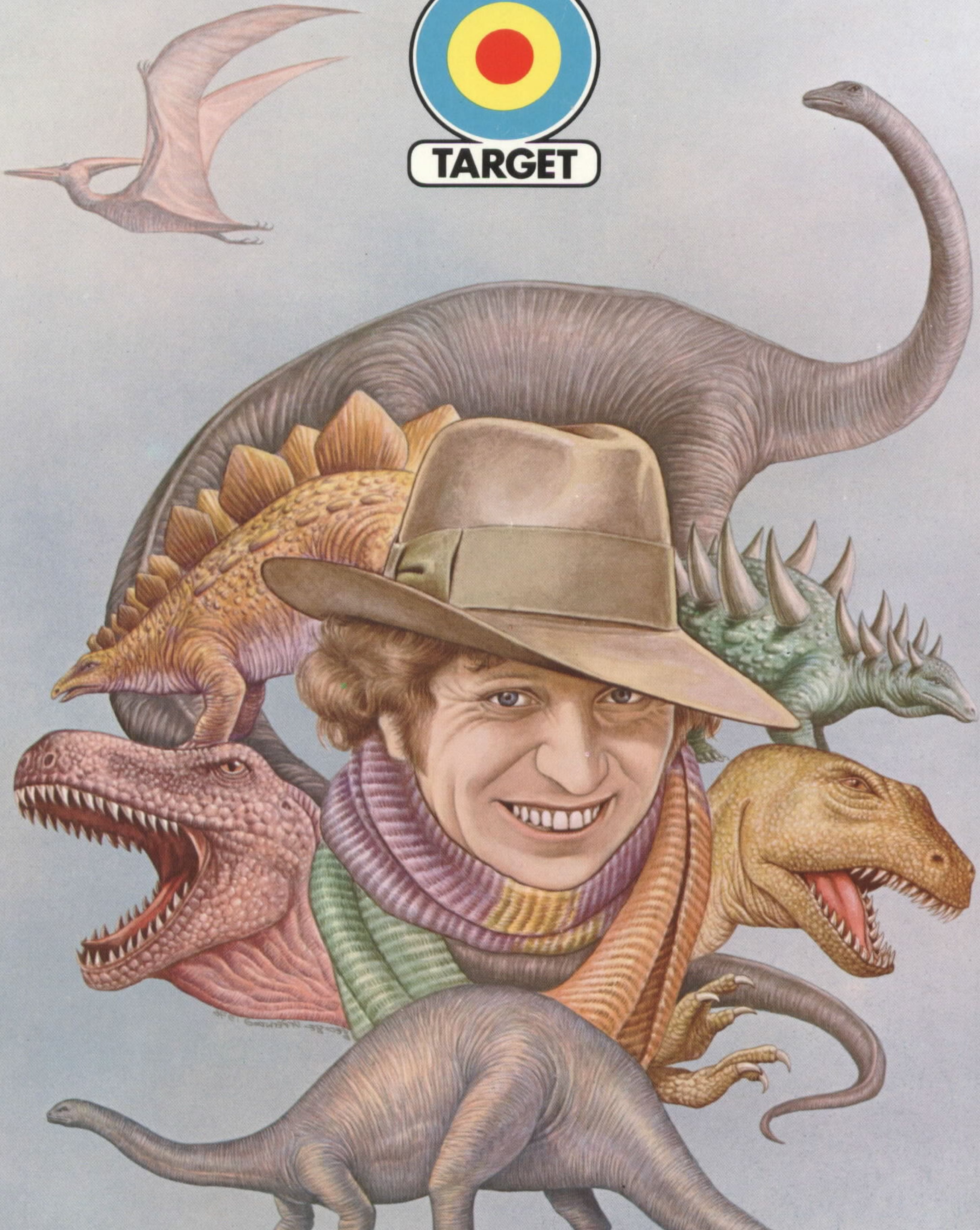
GOODBYE



Time to say goodbye now. I hope you've enjoyed the trip. I'm afraid there's only been time to show you a fraction of the wonders of your planet's past. That's the trouble with travelling in Time – there's always such a terrible lot to see.

Which reminds me – it's time I was on my way. I've got lots of other planets to explore – it's a big Universe, you know! Perhaps we could take another trip some time? Just keep an eye out for an old blue police box. I gather your police aren't using them any more. So if you *do* see one, it'll probably be my TARDIS . . . Goodbye!

TARGET



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